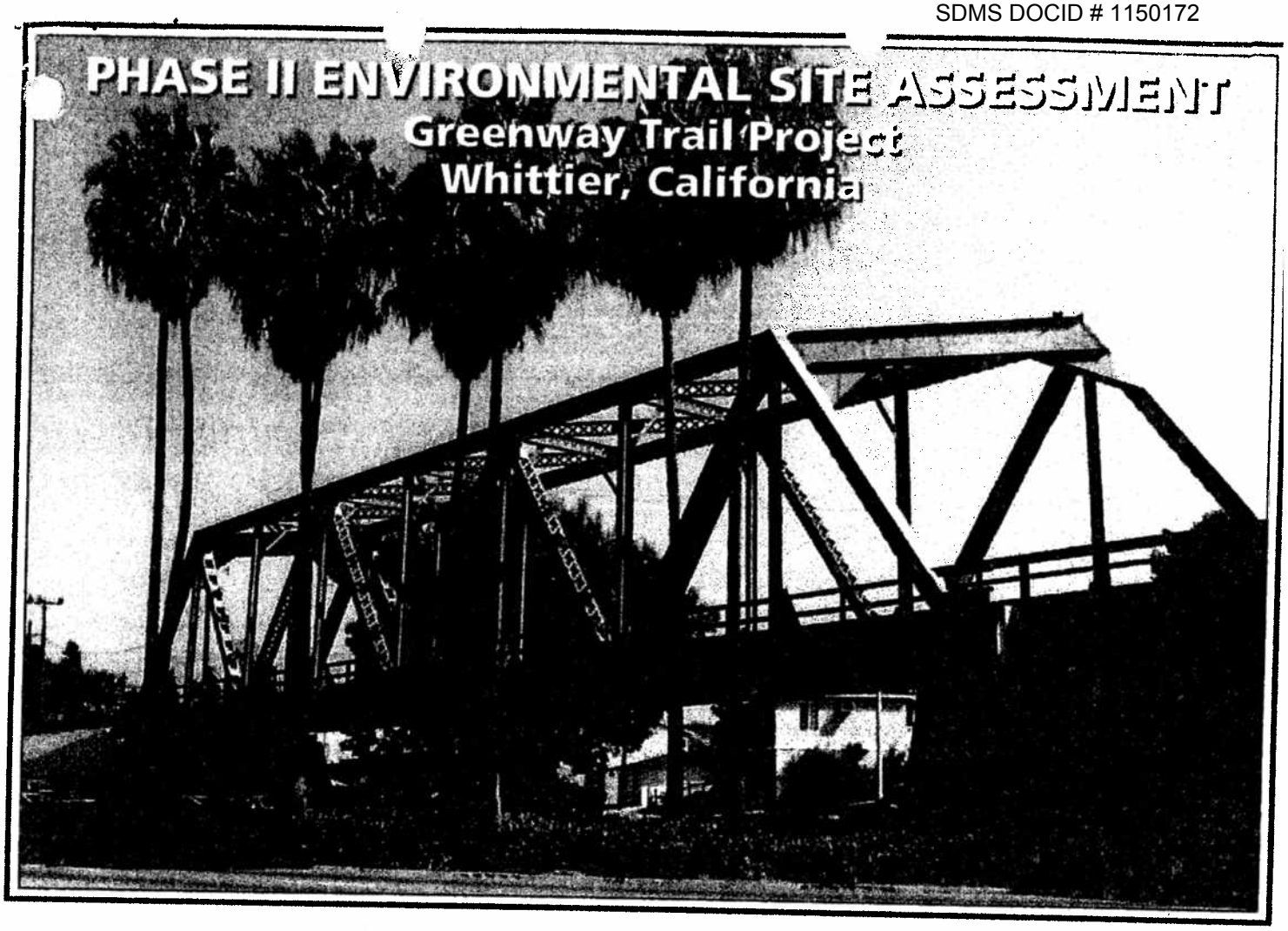
PHASE II ENVIRONMENTAL SITE ASSESSMENT

Greenway Trail Project
Whittier, California



PREPARED FOR:

HYDE MILLER OWEN & TROST
REPRESENTING THE CITY OF WHITTIER

PREPARED BY:

GEOCON CONSULTANTS, INC.
11375 SUNRISE PARK DRIVE, SUITE 100
RANCHO CORDOVA, CALIFORNIA

GEOCON

GEOCON PROJECT NO. A8050-06-03

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1.0 INTRODUCTION

1.1 Site Location and Existing Improvements

Geocon Consultants, Inc. has prepared this Phase II Environmental Site Assessment (ESA) for the Greenway Trail Project under contract with Hyde Miller Owen & Trost (HMO&T) representing the City of Whittier. The *Site* consists of an approximate 5.2-mile long abandoned Union Pacific (UP) railroad corridor located in the City of Whittier, California. The corridor was formerly operated by the Los Angeles & Salt Lake (LA & SL) railroad.

The UP right of way (ROW) is generally 40 to 100 feet in width and extends from the mainline railroad connections near the San Gabriel River (Mile Post [MP] 0.0) to the former Southern Pacific (SP) railroad mainline connection south of Mills Avenue (MP 5.2). A widened area occurs south of Philadelphia Street at the site of the former LA & SL rail station.

The railroad tracks largely remain in-place within the site boundaries with the exception of removed track sections near the mainline connection west of the 605 Freeway, immediately south of Hadley Street, and from north of Gunn Avenue to south of Mills Avenue. A double-ended passing track exists between Philadelphia Street and Penn Street. Other existing structural improvements within the *Site* include bridge and culvert structures, roadway signal crossing equipment and abandoned battery boxes. Building improvements were not noted within the *Site*.

Existing buried utilities within the *Site* include but are not limited to City of Whittier water, storm drain and sewer lines, and Southern California Gas natural gas lines. Petroleum pipelines operated by Mobile, Standard Oil and Southern Pacific Pipelines cross the *Site* near the Whittier Boulevard and Gunn Avenue crossings. The majority of the electric, cable and telephone utilities appear to be located within the city street easements. Information obtained from UP indicates that fiber optic cables are not located within the *Site*.

Review of information provided by HMO&T indicates that approximately thirty UP lease agreements exist for the *Site*. The lease agreements were generally prepared for adjacent property owners for landscaping, vehicle parking, fence and building encroachments, and driveway access purposes. Utility access agreements also exist for natural gas and petroleum pipeline crossings. Building and facility encroachments include a lease for an automobile repair shop building south of the Whittier Boulevard overcrossing (MP 3.11) and a lumber yard and garage south of the Philadelphia Street crossing (MP 2.3).

The approximate location of the *Site* is depicted on the Project Location Map, Figure 1. Site Plans prepared from City of Whittier maps dated 1962 are presented on Figures 2a through 2i. Railroad Right of Way and Track Maps for the *Site* dated 1918 are presented in Appendix A.

1.2 Background

Geocon previously completed a Phase I ESA for the *Site* dated September 22, 2000. The Phase I ESA concluded that the railroad improvements at the *Site* were constructed prior to 1925. Before construction of the railroad corridor, commercial operations near the *Site* included agricultural, lumber, feed, fruit packing and oil storage facilities. Former or existing railroad maintenance, refueling facilities, underground or aboveground storage tanks (USTs/ASTs) were not identified within the site boundaries.

The Phase I ESA report identified potential recognized environmental conditions (RECs) at the *Site* including the following:

- Potential heavy metal soil impacts associated with the presence of slag ballast materials over the entire length of the track bed within the UP corridor.
- Potential pesticide, polychlorinated biphenyls (PCBs) and herbicide soil impacts associated with historical weed and brush control activities within the *Site*.
- Areas of past waste dumping within the *Site* adjacent to the Lambert Tire facility (14001 Lambert Road) and at other miscellaneous locations. Waste materials observed included a five-gallon, open bucket of waste oil, yard waste, discarded furniture, paint cans, discarded gasoline-powered lawn mowers, construction debris, discarded tires, and general refuse.
- Potential petroleum hydrocarbon impacted soil within the *Site* associated with the following adjacent facilities:
    - Cool-A-Coo, 12025 Hadley Street, oil observed flowing from this facility onto the *Site*.
    - Mar Vista Molding located south of Penn Street, asphaltic and white resinous material (glue) observed flowing onto the *Site*.
    - American Cushion, 12353 Whittier Boulevard, "dip tank area" documented petroleum hydrocarbon soil contamination adjacent to and possibly within the *Site*.
    - City of Whittier maintenance yard, 12016 Hadley Street, potential petroleum hydrocarbon soil impacts from former waste disposal sumps.
    - Lambert Tires, 14001 Lambert Road, waste oil dumping on ballast and ties.
- Potential PCB-containing electrical equipment within onsite signal-switching structures.

The Phase I ESA report recommended the removal of refuse and waste from the corridor, and soil sampling and analytical testing to determine the potential presence of heavy metal, pesticide, PCB, herbicide and petroleum hydrocarbon site impacts. The report further recommended an engineering

urvey of the Site to determine potential adjacent property encroachments. It is understood that Thomsen Engineering, Inc. is currently under contract with HMO&T to provide surveying services for the *Site*.

URS under contract to UP completed a *Summary Report Right of Way Slag Investigation* for the *Site* dated November 14, 2000. The investigation included a site reconnaissance, limited ballast depth measurements, and sampling and analytical testing of two ballast samples (light and dark slag). URS reported that the railroad ballast materials within the *Site* are primarily comprised of light and dark slag and gravels varying from 0 to 8 inches thick and from 8 to 60 feet in width. Based on the results of the field survey, URS estimated that approximately 5,000 cubic yards (yd^3) of slag impacted ballast materials and 6,300 yd^3 of heavy metal impacted soil exist within the *Site*. The analytical data indicated elevated chromium and a vanadium concentration above the California hazardous waste threshold in the dark slag ballast sample. The light slag ballast sample did not contain metal concentrations of concern with respect to California hazardous waste thresholds. Elevated concentrations, above naturally occurring background levels, of barium, chromium, copper and vanadium were further reported for each slag sample.

2.0 PURPOSE AND SCOPE OF SERVICES

The purpose of the Phase II ESA was to evaluate potential impacts to the *Site* from the RECs identified in the Phase I ESA report and if necessary, provide recommendations for site remediation. The following scope of services was performed during the performance of the Phase II ESA.

2.1 Pre-Field Activities

- Received a fully executed UP Right of Entry Agreement and authorization to proceed on August 13, 2001.
- Contacted Underground Service Alert (USA) on August 20, 2001 to attempt to delineate subsurface public utilities and conduits in proximity to the proposed exploration locations.
- Prepared a project *Health and Safety Plan* dated August 21, 2001 to provide guidelines on the use of personal protective equipment and health and safety procedures during the field activities.
- Retained the services of Advanced Technology Laboratories (ATL) located in Signal Hill, California to perform chemical analyses of soil and ballast samples.

2.2 Asbestos and Lead-Containing Paint Bridge Surveys

Mr. David Watts, a California Certified Asbestos Consultant and Lead-Based Paint Inspector/Assessor performed asbestos and lead-containing paint surveys of the four onsite bridge structures on August 17, 2001. The steel bridge structures surveyed include the following:

- 605 Freeway Overcrossing
- Norwalk Boulevard Overcrossing
- Pickering Avenue Overcrossing
- Whittier Boulevard Overcrossing

A separate asbestos and lead-containing paint bridge survey report is presented in Appendix B.

2.3 Field Sampling Activities

Geocon performed 31 exploratory backhoe trenches (T1 through T31) within the *Site* on August 23 and 24, 2001. The majority of the trenches were performed within or adjacent to the existing track bed to evaluate the ballast thickness and to obtain ballast and underlying soil samples for analytical testing. The remaining trenches were performed in areas of suspected surface staining and/or adjacent to facilities with documented soil impacts. With the exception of Trench T8, the trenches were excavated to a maximum depth of 3 feet below the ground surface (bgs). Trench T8 was excavated to a maximum depth of 7 feet bgs in debris fill deposits encountered between Magnolia Avenue and Hadley Street.

Ballast and soil samples were generally collected from each trench at depths of 0.5, 1 and 2 feet bgs. Surface soil samples (S1 through S10) were further collected at selected locations to evaluate the potential presence of pesticides, herbicides, PCBs, lead and arsenic. In addition, paint chip and adjacent

surface soil samples were obtained from aboveground storm drain boxes located at the Pioneer Boulevard crossing and at a retaining wall located between Magnolia Avenue and Hadley Street.

A Trimble® Pathfinder Pro XR™ portable global positioning system (GPS) data collection unit was utilized to locate the exploratory trench and surface soil locations and to identify the specific geographic location of potential RECs and features of importance (e.g. refuse piles) that may have an impact on the future development of the *Site*. The GPS system utilized signals from up to eight available satellites to locate points with sub-meter accuracy. The exploratory trench, paint chip and surface soil locations are depicted on Figures 2a through 2i.

The soil samples were collected in resealable plastic bags or stainless steel sample tubes depending on the analytical testing requirements. After collection, each sample was labeled, placed in a chilled cooler and transported to ATL under standard chain-of-custody procedures for subsequent chemical analyses.

2.4 Laboratory Analyses

Nine bridge material samples were analyzed for asbestos following Environmental Protection Agency (EPA) Test Method 600/M4-82-020 using polarized light microscopy. Eighteen bridge and abutment paint samples were analyzed for total lead content following EPA Test Method 6010B.

Samples obtained from the UP corridor were analyzed for the following:

- Fifty-six ballast and soil samples were analyzed for California Code of Regulations (CCR) Title 22 metals[(1)] by EPA Test Methods 6010B and 7471A (mercury cold vapor technique).
- Twenty-nine soil and paint chip samples were analyzed for total lead and/or arsenic by EPA Test Method 6010B.
- Twenty-six ballast, soil and paint chip samples were subsequently analyzed for soluble arsenic, barium, copper, lead and vanadium following the Waste Extraction Test using citric acid (WET) and de-ionized water (DI-WET) extractants by EPA Test Method 6010B.
- Two soil samples were analyzed for hexavalent chromium by EPA Test Method 7196A.
- Eight soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) following EPA Test Method 8015B modified and benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Test Method 8020A.
- Fourteen soil samples were analyzed for total petroleum hydrocarbons as diesel (TPHd) and motor oil (TPHmo) by EPA Test Method 8015B modified.
- Eleven soil samples were analyzed for organochlorine pesticides by EPA Test Method 8081A, PCBs by EPA Test Method 8082 and herbicides by EPA Test Method 8151.
- Six soil samples were analyzed for volatile organic compounds (VOCs) by EPA Test Method 8260B.

- One ballast sample was analyzed for semi-volatile organic compounds (SVOCs) by EPA Test Method 8270C.

(1) CCR Title 22 metals include antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium and zinc.

Quality assurance/quality control (QA/QC) procedures were performed for each method of analysis with specificity for each analyte listed in the test method's QA/QC. Prior to submitting the ballast, soil, paint chip and bridge material samples to the analytical laboratory, the chain-of-custody documentation was reviewed for accuracy and completeness. The laboratory reports were also reviewed for accuracy and consistency with the chain-of-custody documentation and to verify that the laboratory results are within tolerance control limits. Based upon this review process, the data quality appears to be adequate for the purposes of this report.

3.0 INVESTIGATIVE RESULTS

3.1 General Site Observations

The northern and southern portions of the *Site* are generally bordered by residential development. Commercial and to a lesser extent light industrial development occurs between the Magnolia Avenue crossing and the Whittier Boulevard overcrossing. Additional commercial facilities border the *Site* between Calmada Avenue and Mills Avenue adjacent to Lambert Road. Track grades within the *Site* are relatively flat to slightly elevated over the majority of the site boundaries. Elevated track grades and embankment slopes occur in the vicinity of the Norwalk Boulevard, Pickering Avenue and Whittier Boulevard overcrossings. ROW encroachments were noted at several adjacent residential properties. Building encroachments were further noted adjacent and south of the Whittier Boulevard overcrossing.

The northern portion of the *Site* north of the 605 Freeway overcrossing was noted to contain relatively minor debris including sections of concrete pipe. The rail and ties have been partially removed at the two mainline crossings near the northern site boundary. A stockpile of light slag ballast materials was observed near the northern site boundary. From the 605 Freeway overcrossing to the Whittier Boulevard overcrossing, the *Site* was noted to be generally free of illegal dumping and debris. Concrete debris piles were noted north of the Palm Avenue crossing and south of the Hadley Street crossing. A stockpile of rail and ties and an active wash water discharge from an adjacent food processing facility were further noted south of the Hadley Street crossing. Homeless encampments were noted between Philadelphia Avenue and Penn Street, and on the Whittier Boulevard overcrossing structure. A double-ending passing track exists between Philadelphia Street and Penn Street.

The southern portion of the *Site* south of Whittier Boulevard was noted to contain a moderate to heavy growth of brush and weeds. A masonry block debris pile was noted north of the Painter Avenue crossing. Relatively recent brush clearing appeared to be completed south of Gunn Avenue to Mills Avenue. The rail and ties have been removed between Gunn Avenue and Mills Avenue. Miscellaneous scattered debris including brush piles, rail ties, trash and oily 5-gallon buckets were noted between Calmada Avenue and Mills Avenue.

Signal crossing equipment was noted at each of the major street crossings. Mr. Ken Edger with UP opened the signal box at the Mills Avenue to allow for inspection of the contents. The enclosed signal box was observed to contain electronic equipment and back-up batteries. The signal boxes at the *Site* will likely be salvaged for reuse according to Mr. Edger. Battery boxes were observed at the following locations within the *Site*:

1. South of the 605 Freeway Overcrossing (MP 0.3)

2. Between the Norwalk Boulevard overcrossing and the Palm Avenue crossing (MP 1.2)
3. Between the Philadelphia Street and Penn Street crossings (MP 2.4)
4. Between the Mar Vista Street crossing and Pickering Avenue Overcrossing (MP 2.8)
5. South of Mills Avenue near the UP mainline junction (MP 5.2)

Photographs depicting the rail bed within the *Site* and observed features are presented on Figures 3a through 3g.

3.2 Bridge Surveys

Asbestos containing materials were only detected at the 605 Freeway overcrossing structure. Samples of thermal system pipe insulation contained 20% Chrysotile friable asbestos. The insulation materials were noted to be in good condition and do not require removal unless planned bridge renovation disturb the materials or the bridge is removed.

Lead-containing gray paint was detected on each of the four bridge structures at concentrations ranging from 110 to 460,000 milligrams per kilogram (mg/kg). The light gray bridge paint was observed to be generally intact. Lead-containing paint was further detected on beige-painted bridge abutments at concentrations ranging from 110 to 560 mg/kg. Beige-painted abutments at the Norwalk, Pickering and Whittier overcrossing structures were noted be significantly flaking or peeling.

A copy of the Geocon *Asbestos and Lead-Containing Paint Surveys* report including site photographs, tabular summaries of analytical data and laboratory reports is presented in Appendix B.

3.3 Ballast Material Survey

Geocon performed shallow exploratory trenches within or adjacent to the existing track bed at the *Site* to determine the thickness of the ballast materials and to sample the ballast and underlying soil materials to evaluate potential heavy metal impacts associated with the presence of slag ballast. The slag ballast materials observed at the *Site* consist of light gray vesicular material with iron clasts (light slag ballast) and copper-ore slag (dark slag ballast). The vast majority of the track bed within the *Site* contains light slag ballast overlying gravel aggregate materials. An approximate 50 yd^3 stockpile of light slag ballast was noted near the northern site boundary indicating relatively recent use of these materials. The dark slag ballast materials are generally confined to the following three sections within the *Site*:

1. Bailey Street to halfway between Philadelphia Street and Penn Street. From south of Philadelphia Street the dark ballast materials are generally confined to the western double-ended passing track.

2. From south of Mar Vista Street to Greenleaf Avenue. The dark slag ballast materials were further noted adjacent to sidewalk areas beneath the Pickering Avenue overcrossing.

3. From Mills Avenue to the southern site boundary.

The approximate extent of the dark slag ballast materials is depicted on the attached Site Plans. The remaining areas contain varying quantities of light slag ballast materials. Ballast thickness and width measurements obtained during the field survey are summarized on Table 1.

Information obtained from UP personnel indicates that the likely sources of the light and dark slag ballast materials at the *Site* are copper-ore smelting facilities located in Arizona and Utah, respectively. These materials are reportedly no longer utilized by UP for rail bed construction or re-ballasting due to the presence of heavy metals, potential environmental concerns and California regulatory disposal requirements. Redevelopment of other railroad properties within California has required the excavation and disposal of light and dark slag ballast materials to Class I or II disposal facilities based on elevated heavy metal concentrations.

3.4 Slag Ballast Analytical Results

The results of the laboratory testing indicate that light and dark slag ballast contain elevated levels of arsenic (2 to 70 mg/kg), lead (3.5 to 630 mg/kg) and vanadium (0.5 to 1,000 mg/kg). Light slag sample T16-.5 contained the highest chromium concentration of 200 mg/kg but did not contain detectable hexavalent chromium. The following table presents the calculated upper one-sided 95% upper confidence limits (UCLs) and presents the residential and industrial EPA Region 9 Preliminary Remediation Goals (PRGs) for the elevated metals detected in the slag ballast materials:

Material	Metal	95% UCL (mg/kg)	Residential PRG	Industrial PRG
Light Slag	Arsenic	35	0.39 (22)[1]	2.7 (440)[1]
Dark Slag		50		
Light Slag	Lead	72	400	750
Dark Slag		358		
Light Slag	Vanadium	512	550	14,000
Dark Slag		89		

[1] EPA non-cancer endpoint

The light and dark slag ballast materials do not contain reported total metal concentrations above their respective California Total Threshold Limit Concentration (TTLC) hazardous waste thresholds. Dark slag sample T12-.5 contained a total lead concentration of 630 mg/kg, above the California Health and Safety Code (HSC) Class I disposal threshold for lead of 350 mg/kg.

One light slag sample (T7-.5) and one dark slag sample (T12-.5) contained respective WET soluble lead concentrations of 6.1 and 5.2 milligrams per liter (mg/l), above the California Soluble Threshold Limit Concentration (STLC) hazardous waste threshold for lead of 5.0 mg/l. Slag sample T7-.5 contained a WET soluble copper concentration of 25 mg/l, equal to the STLC hazardous waste threshold for copper.

Ten slag samples (T5-.5, T12-.5, T15-.5, T16-.5, T19-.5, T24-.5, T26-.5, T30-.5, T31-.5 and T31-Slag) did not contain WET soluble arsenic, copper, lead or vanadium concentrations above respective STLC hazardous waste thresholds. DI-WET soluble arsenic, copper, lead and vanadium were further not detected in each of the ten slag samples analyzed.

3.5 Track Bed Soil Analytical Results

The results of the laboratory testing indicate that the soil materials underlying the track bed contain elevated levels of arsenic ranging from 8 to 210 mg/kg. The following table presents the calculated upper one-sided 95% UCLs and presents the residential and industrial EPA Region 9 PRGs for the elevated arsenic detected in the track bed soil samples:

Soil Sample Depth (feet)	Metal	95% UCL (mg/kg)	Residential PRG	Industrial PRG
1	Arsenic	47	0.39 (22)[1]	2.7 (440)[1]
2		39		

[1] EPA non-cancer endpoint

Soil samples collected at 1 and 2 feet bgs within the track bed do not contain reported total metal concentrations above their respective California TTLC hazardous waste thresholds or HSC Class I disposal thresholds. Three of seven soil samples analyzed (T1-1, T1-2 and T4-1) contained WET soluble arsenic concentrations ranging from 5.2 to 12 mg/l, above the STLC hazardous waste threshold for arsenic of 5.0 mg/l. DI-WET soluble arsenic concentrations were detected in five of seven soil samples analyzed (T1-1, T1-2, T3-1, T4-2 and T5-2) at concentrations ranging from 1.2 to 1.4 mg/l.

3.6 Right of Way Soil Analytical Results

Eleven random surficial soil samples were obtained within the *Site* to evaluate the potential presence of pesticides, PCBs, herbicides, lead and arsenic. Relatively low pesticide levels were detected in three of the eleven soil samples analyzed at concentrations ranging from 2.6 to 370 micrograms per kilogram (µg/kg). The pesticide concentrations detected are well below the residential EPA Region 9 PRGs with the sole exception of 250 µg/kg dieldrin detected in soil sample S7-.5 (PRG = 30 µg/kg). PCBs (Aroclor 1260) were only detected in soil sample S1-.5 at 220 µg/kg equal to the residential EPA Region 9 PRG. Herbicides were not detected in each of the eleven soil samples analyzed. Elevated lead and arsenic concentrations above naturally occurring background concentrations were not detected in the surface soil samples obtained from the *Site* outside of the track bed areas.

Ten soil samples were obtained from exploratory trenches performed in areas of observed surface stains, debris areas or adjacent to facilities with industrial operations as discussed in Section 1.2 of this report. TPHg, TPHd and VOCs were not detected in each soil sample analyzed with the exception of

one trichloroethene concentration of 34 µg/kg in trench T20. TPHmo was detected in each soil sample at concentrations less than 100 mg/kg with the exception of 170 mg/kg detected in soil sample T29-1.

Two stained ballast samples obtained from trenches T3 and T7 were obtained directly beneath treated railroad ties and analyzed for petroleum hydrocarbons and SVOCs. Motor oil range hydrocarbons were detected at concentrations of 340 and 1,600 mg/kg. The stained ballast sample obtained from trench T3 also contained fluoranthene at a concentration of 35 mg/kg.

Exploratory trench T8 performed between Magnolia Avenue and Hadley Street encountered debris fill materials between approximately 4 to 7 feet bgs. The debris fill materials primarily consist of bottles, broken china, oily waste, brick fragments and rusted metal parts likely associated with historical railroad operations. A sample of the stockpiled debris fill materials contained a total lead concentration of 5,800 mg/kg in excess of the TTLC hazardous waste threshold of 1,000 mg/kg. TPHmo was further detected at a concentration of 820 mg/kg at a depth of 5.5 feet bgs. TPHg, TPHd and VOCs were not detected in each debris fill material sample analyzed.

Six soil samples and two paint chip samples were obtained adjacent to a painted aboveground storm drain box located on the south side of the Pioneer Boulevard crossing, a painted retaining wall between Magnolia Avenue and Hadley Street, and adjacent to painted bridge abutments at the Norwalk and Whittier Boulevard overcrossings. The soil samples contained lead concentrations ranging from 4 to 260 mg/kg. Two of the soil samples (Ret Wall #1 and S10-0) contained WET soluble lead concentrations of 9.5 and 8.2 mg/l, above the STLC hazardous waste threshold of 5.0 mg/l for lead. DI-WET lead was not detected in each soil sample analyzed. The storm drain box and retaining wall paint chip samples contained total lead concentrations of 1,100 and 6.0 mg/kg, respectively.

A sample log is presented on Table 1. Summaries of the soil analytical results are presented on Tables 2 through 5. Copies of the laboratory reports and chain-of-custody documentation are presented in Appendix C.

4.0 CONCLUSIONS AND RECOMENDATIONS

The *Site* consists of 5.2 miles of abandoned UP railroad ROW located between the mainline connections near the San Gabriel River crossing to the UP mainline connection south of Mills Avenue in Whittier, California. The approximate 40- to 100-foot wide railroad corridor is located primarily within residential and commercial areas and to a lesser extent light industrial development. Existing improvements include railroad tracks, four steel bridge structures, drainage culverts, abandoned battery boxes, and signal crossing equipment. A widened ROW area associated with a former railroad station is located south of Philadelphia Street. Significant surface stain areas, distressed vegetation, and evidence of former or existing refueling or maintenance facilities including USTs and ASTs were not observed within the *Site*.

The vast majority of the UP ROW was observed to be generally free of illegal dumping given the length, urban location and inactive status of the corridor. Surface debris materials were noted within the *Site* at the following locations:

- Concrete/masonry block piles are located north of Palm Avenue, south of Hadley Street and north of Painter Avenue.
- Rail and tie stockpile located south of Hadley Street.
- Glue deposits adjacent to the Mar Vista Molding company located south of Penn Street.
- Miscellaneous trash, rail ties, brush piles located between Calmada Avenue and Mills Avenue.

The *Site* should be cleared of brush/weed vegetation and observed debris materials and abandoned battery boxes within the *Site* removed and properly disposed of prior to corridor acquisition. Soil staining observed beneath the removed debris and battery boxes should be sampled and/or removed and properly disposed. Battery boxes were observed at the following locations:

1. South of the 605 Freeway Overcrossing (MP 0.3)
2. Between the Norwalk Boulevard overcrossing and the Palm Avenue crossing (MP 1.2)
3. Between the Philadelphia Street and Penn Street crossings (MP 2.4)
4. Between the Mar Vista Street crossing and Pickering Avenue Overcrossing (MP 2.8)
5. South of Mills Avenue near the UP mainline junction (MP 5.2)

It is understood that the existing track (rail and ties) and signal crossing improvements may or may not be removed prior to potential corridor acquisition. The rails may be suitable for reuse, recycling (re-roll) and/or scrap salvage. Railroad ties in good condition should be suitable for salvage and recycling for landscaping and retaining wall construction purposes. Damaged and/or unusable railroad ties may be disposed of at the Puente Hills Landfill facility under non-hazardous waste manifest.

The results of the Phase II ESA indicate the presence of RECs within the *Site* including slag ballast materials, arsenic impacted track bed soil, buried debris fill materials, asbestos containing materials and lead-containing paint. Recommendations regarding mitigation of each of the RECs are presented below.

The light and dark slag ballast materials within the entire track bed at the *Site* contain elevated heavy metal concentrations notably arsenic, lead and vanadium. The arsenic levels are similar for the light and dark slag materials at 95% UCL concentrations of 35 and 50 mg/kg, respectively. The dark slag materials contain significantly higher lead concentrations (95% UCL = 358 mg/kg) and lower vanadium concentrations (95% = 89 mg/kg) when compared to the light slag materials (72 and 512, respectively). One dark slag sample (T12-.5) and one light slag sample (T7-.5) contained soluble lead levels above California hazardous waste thresholds. The dark slag sample further contained a total lead concentration in excess of the HSC Class I hazardous waste disposal threshold.

The primary contaminant of concern associated with the slag ballast materials and underlying track bed soil is arsenic. The light and dark slag ballast materials and underlying soil contain 95% UCL arsenic levels ranging between 35 and 50 mg/kg compared to the cancer residential and industrial PRGs of .39 and 2.7 mg/kg, respectively. Naturally occurring background arsenic values typically range from 8 to 12 mg/kg. The surface soil samples obtained from the corridor outside of the track bed areas contained a 95% UCL for arsenic of 14 mg/kg.

Due to the elevated arsenic and lead concentrations, it is recommended that light and dark slag ballast materials be removed from the *Site* and properly disposed of. Disposal options include Class I and/or II landfill facilities or recycling at Portland cement, concrete or asphalt batch plants. A site-specific risk assessment should be performed to determine an acceptable arsenic concentration for the underlying soil materials beneath the track bed. Soil materials containing arsenic levels above the acceptable cancer risk level will require removal and disposal, or capping with clean fill materials.

Debris fill materials containing California hazardous waste levels of lead were encountered at depths between 4 and 7 feet bgs in trench T8 located between Magnolia Avenue and Hadley Street. The debris materials contain bottles, china fragments and other typical railroad-related historical waste products. Additional investigation is required to determine the lateral and vertical extent of the debris materials and appropriate remedial action. The additional investigation should also determine whether the debris material extends beyond the ROW boundaries.

The petroleum hydrocarbon, VOC, pesticide, PCB, lead and arsenic concentrations detected in the randomly obtained surface soil samples do not warrant further investigation and/or remediation. Removal and proper disposal of isolated stained gravel ballast areas (observed in trenches T3 and T7) will be required. Stained ballast areas were not observed in areas where the rails and ties have been removed and therefore stained ballast is likely limited in lateral extent.

The adjacent food processing facility located south of Hadley Street should be contacted to redirect wash water discharges away from the *Site* and into the sanitary sewer system or other appropriate disposal measures. Facility and building encroachments discovered during the engineering survey of the *Site* should be inspected and further evaluated for potential environmental impacts including the automobile repair facility located adjacent and south of the Whittier Boulevard overcrossing.

Special disposal and worker protection measures associated with asbestos containing materials at the 605 Freeway overcrossing and lead-containing paint identified at the Norwalk Boulevard, Pickering Street and Whittier Boulevard overcrossing structures, the storm drain boxes at Pioneer Boulevard and the retaining wall structure located between Magnolia Avenue and Hadley Street will be necessary in accordance with the recommendations presented in Appendix B of this report.

5.0 Report Limitations

This report has been prepared exclusively for HMO&T and the City of Whittier. The information contained herein is only valid as of the date of the report.

The Client should recognize that this report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein.

Therefore, the report should only be deemed conclusive with respect to the information obtained. No guarantee or warranty of the results of the report is implied within the intent of this report or any subsequent reports, correspondence or consultation either expressed or implied. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

TABLE 1
SUMMARY OF ANALYTICAL LABORATORY TEST RESULTS - ASBESTOS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

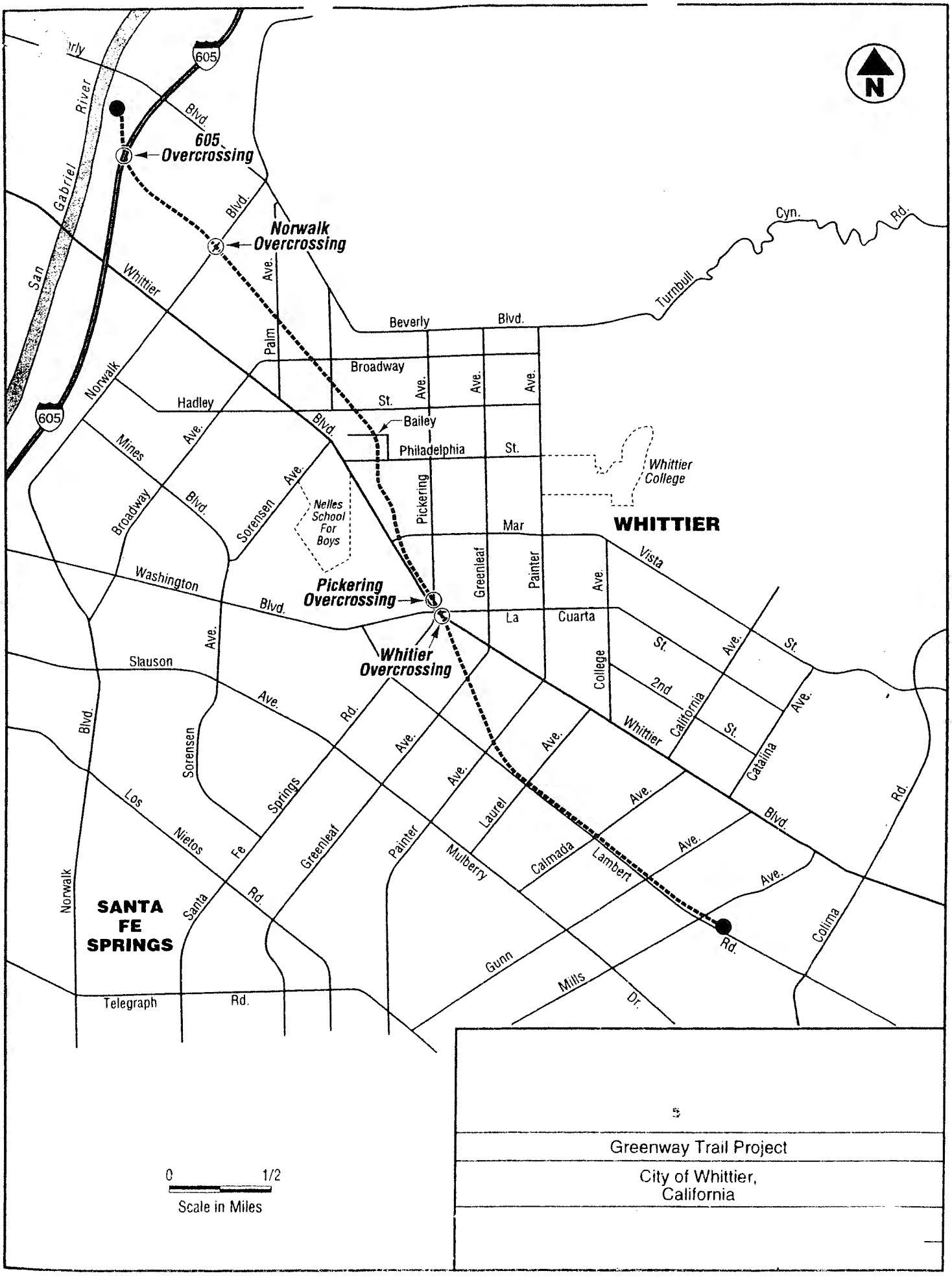
SAMPLE I.D.	BRIDGE	FRIABILITY	MATERIAL DESCRIPTION/CONDITION	APPROXIMATE QUANTITY (SQUARE FEET)	ASBESTOS EPA 600/M4-82-020 (TYPE AND % BY WEIGHT)
605-1A	INTERSTATE 605 BRIDGE	FRIABLE	THERMAL SYSTEM PIPE INSULATION/GOOD	1,200 SQUARE FEET	CHRYSOTILE 20%
605-1B					NA
605-1C					NA
NO-1A	NORWALK BOULEVARD OVERCROSSING	FRIABLE	ABUTMENT JOINT EXPANSION MATERIAL/GOOD	NQ	ND
NO-1B					ND
NO-1C					ND
WO-1A	WHITTIER BOULEVARD OVERCROSSING	FRIABLE	ABUTMENT JOINT EXPANSION MATERIAL/GOOD	NQ	ND
W0-1B					ND
WO-1C					ND

Notes: ND = Not detected
NA = Sample not analyzed (prior positive)
NQ = Not quantified

TABLE 2
SUMMARY OF ANALYTICAL LABORATORY TEST RESULTS – LEAD IN PAINT
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	PAINT COLOR	BRIDGE	LOCATION	APPROXIMATE TOTAL QUANTITY	CONDITION	TOTAL LEAD (mg/kg)
605-LCP-1A	GRAY	INTERSTATE 605	SUPERSTRUCTURE	12,000 SF	INTACT	400,000
605-LCP-1B						430,000
605-LCP-1C						460,000
NO-LCP-1A	BEIGE	NORWALK OVERCROSSING	SUPERSTRUCTURE AND ABUTMENTS	5,000 SF	APROXIMATELY 1,000 SF PEELING (ABUTMENTS)	560
NO-LCP-1B						200
NO-LCP-1C						350
PO-LCP-1A	BEIGE	PICKERING OVERCROSSING	ABUTMENTS	8,000 SF	APROXIMATELY 1,500 SF PEELING (ABUTMENTS)	320
PO-LCP-1B						180
PO-LCP-1C						110
PO-LCP-2A	GRAY	PICKERING OVERCROSSING	SUPERSTRUCTURE	2,500 SF	INTACT	160,000
PO-LCP-2B						85,000
PO-LCP-2C						11,000
WO-LCP-1A	GRAY	WHITTIER OVERCROSSING	SUPERSTRUCTURE	10,000 SF	INTACT	220,000
WO-LCP-1B						130,000
WO-LCP-1C						150,000
WO-LCP-2A	BEIGE	WHITTIER OVERCROSSING	ABUTMENTS	8,000 SF	APROXIMATELY 1,000 SF PEELING (ABUTMENTS)	310
WO-LCP-2B						240
WO-LCP-2C						150

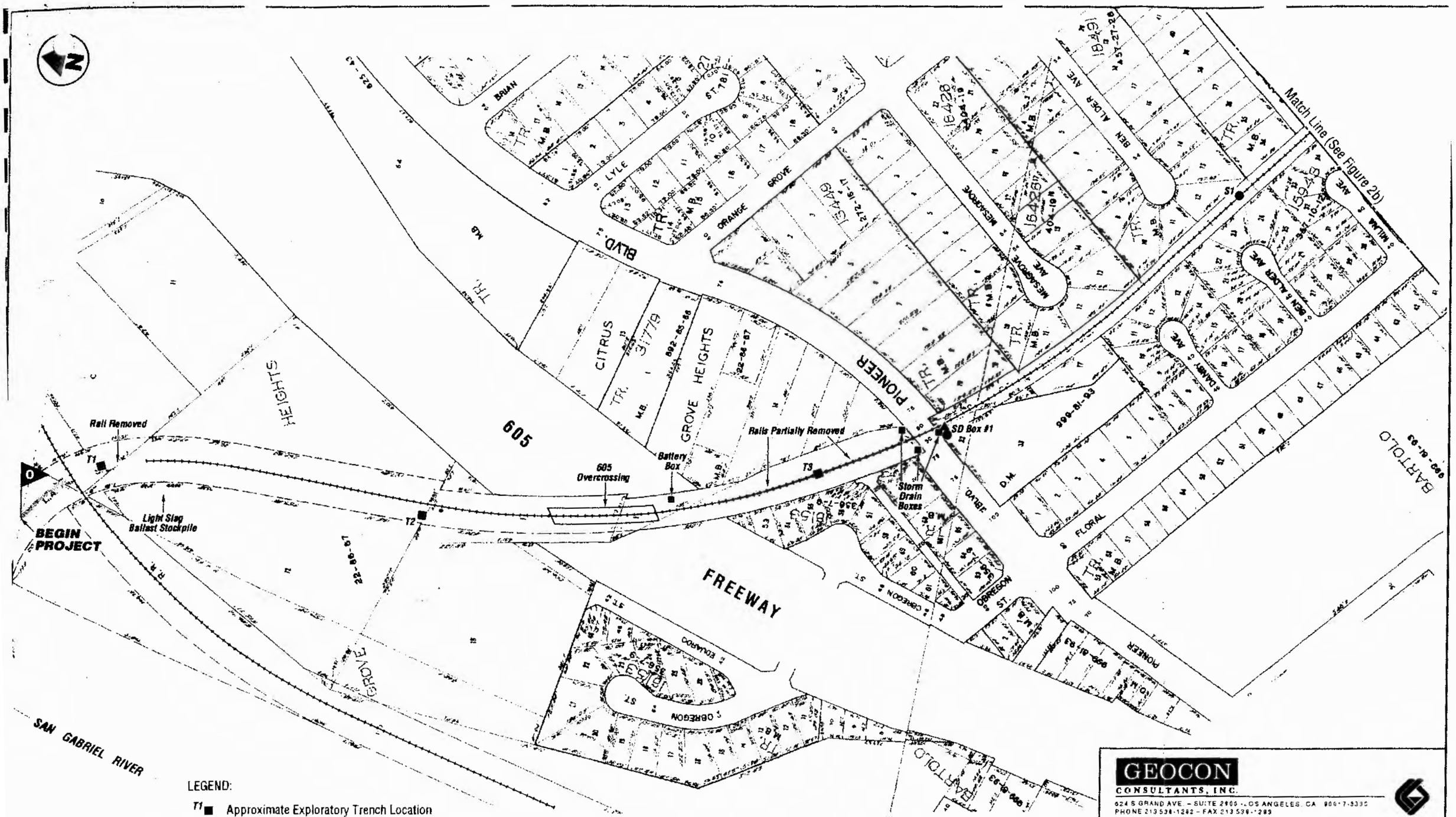
Notes: mg/kg = Milligrams per kilogram
SF = Square feet



5

Greenway Trail Project

City of Whittier,
California



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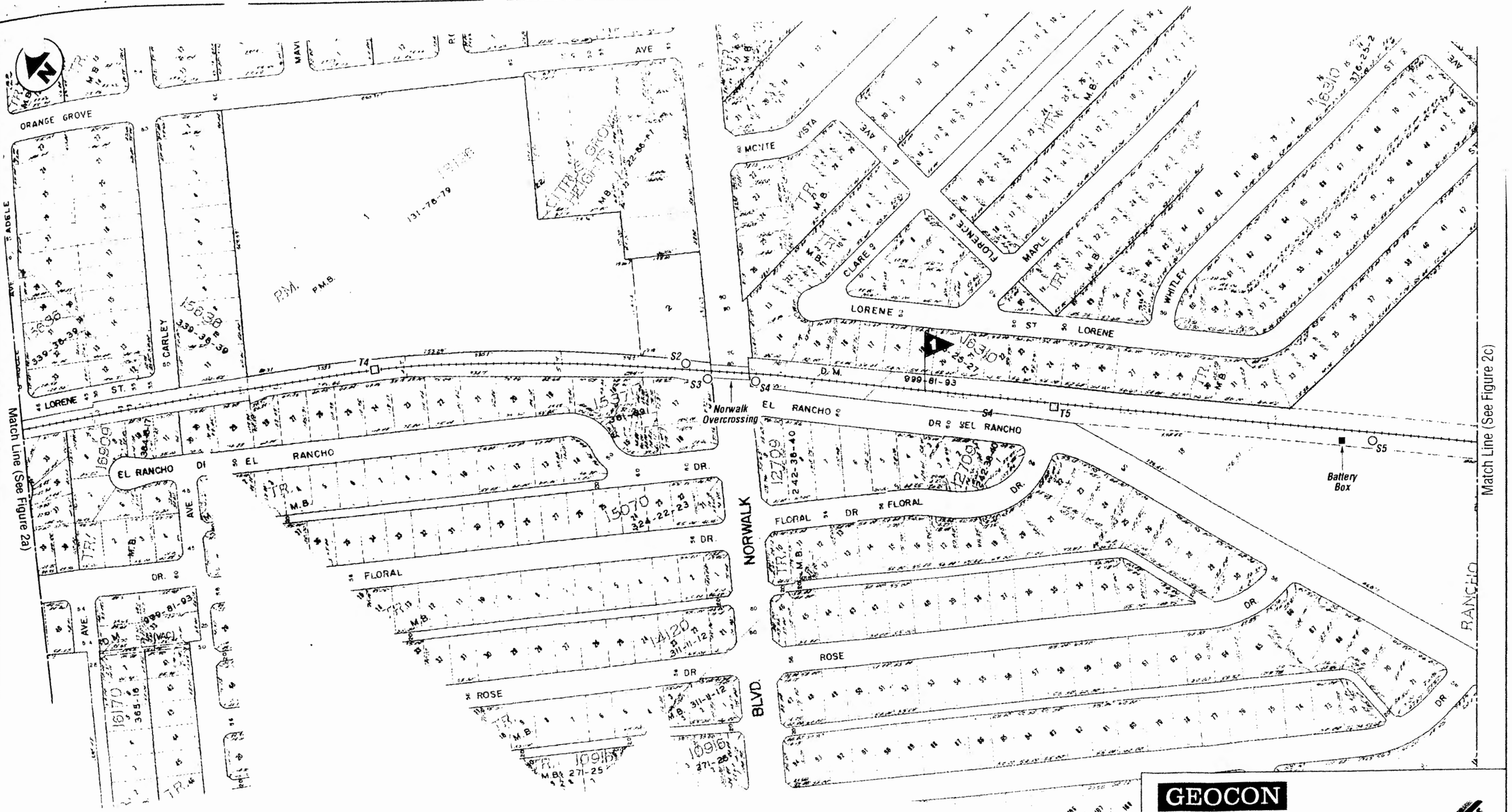
Greenway Trail Project

City of Whittier, California

SITE PLAN

A8050-06-03	October 2001	Figure 2a



LEGEND:

- T1 Approximate Exploratory Trench Location
- S1 Approximate Surface Soil Sample Location
- Mile Post Marker

0 200
Scale in Feet

GEOCON
CONSULTANTS, INC.

Greenway Trail Project
City of Whittier, California
SITE PLAN

A8050-06-03	October 2001	Figure 2b

Match Line (See Figure 2b)

Match Line (See Figure 2d)

PARTITION

BARTOLO

COHNS M.R.

BROADWAY

ORANGE DR.

HOWARD

WESTERN AVE.

PALM AVE.

DORLAND

CANOBIE AVE.

COURT AVE.

HILLVIEW

MERIT

Concrete Debris Pile

T6

S6

S7

LEGEND:

T1 ■ Approximate Exploratory Trench Location

S1 ● Approximate Surface Soil Sample Location

0 200

Scale in Feet

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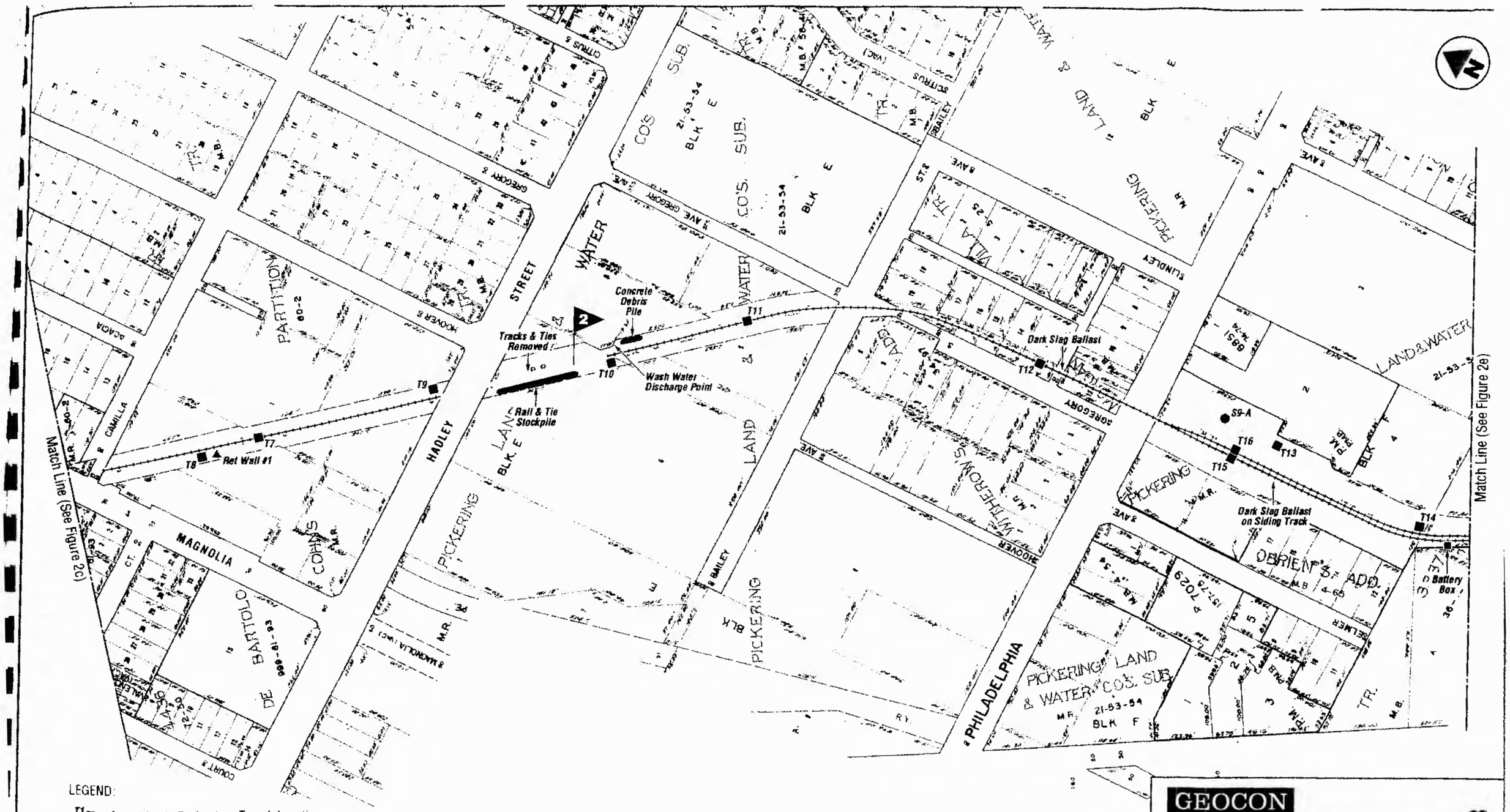
Greenway Trail Project

City of Whittier, California

SITE PLAN

A8050-06-03	October 2001	Figure 2c



LEGEND:

- T1 ■ Approximate Exploratory Trench Location
- S1 ● Approximate Surface Soil Sample Location
- SD Box #1 ▲ Approximate Paint Chip Sample Location
- Area of Partial or Complete Rail & Tie Removal
- Approximate Extent of Dark Slag Ballast
- Mile Post Marker

GEOCON
CONSULTANTS, INC.

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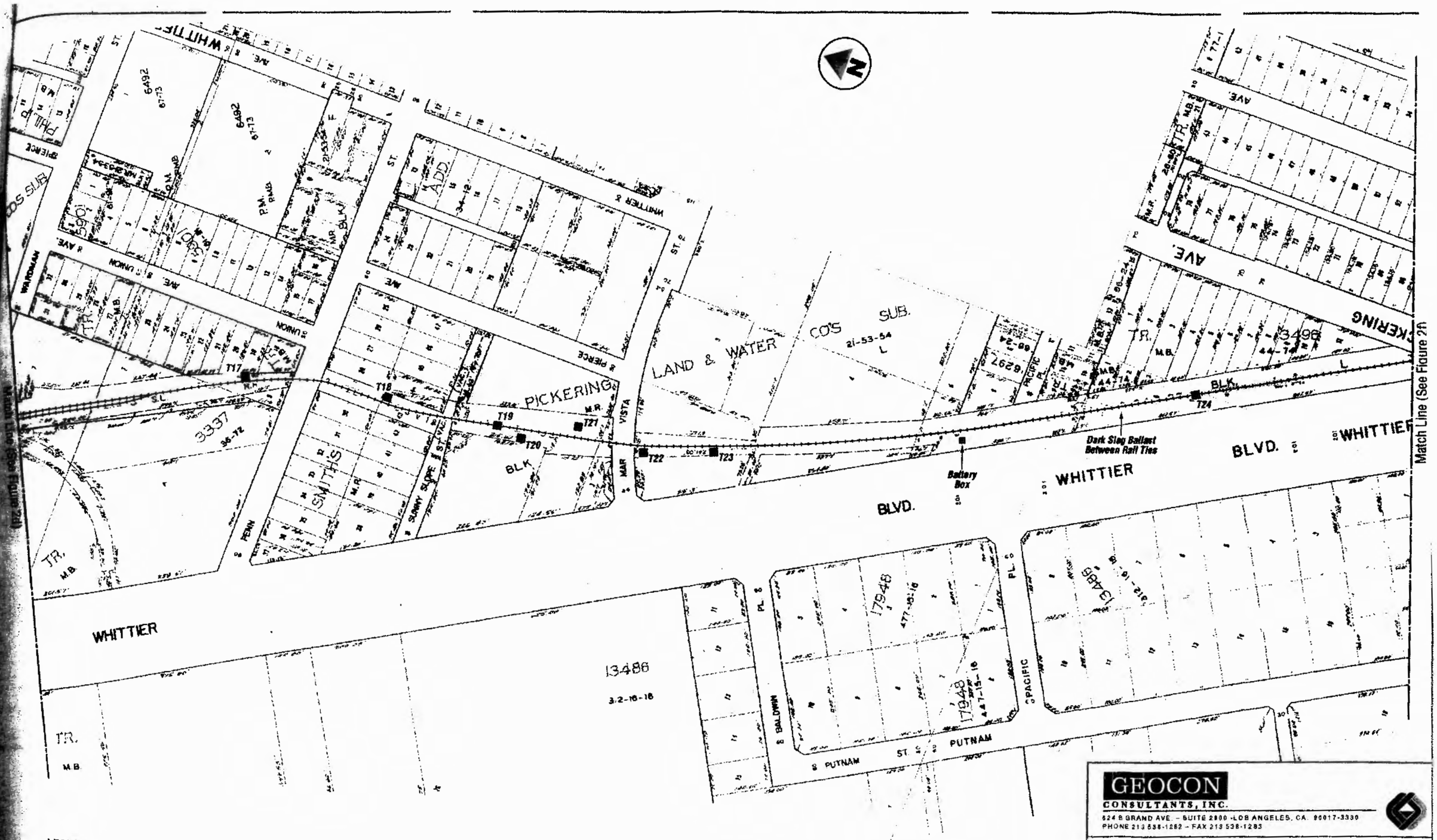
Greenway Trail Project
City of Whittier, California

SITE PLAN

A8050-06-03	October 2001	Figure 2d



LEGEND:

T1■ Approximate Exploratory Trench Location

Approximate Extent of Dark Slag Ballast

0 200

Scale In Feet

GEOCON CONSULTANTS, INC.

5245 GRAND AVE. – SUITE 2800 - LOS ANGELES, CA. 90017-3330
PHONE 213 538-1282 – FAX 213 538-1283

Greenway Trail Project

City of Whittier, California

SITE PLAN

A8050-06-03	October 2001	Figure 2e

Match Line (See Figure 2e)

Match Line (See Figure 2g)

LEGEND:

- T1 ■ Approximate Exploratory Trench Location
- S1 ⊗ Approximate Surface Soil Sample Location
- Approximate Extent of Dark Slag Ballast
- Mile Post Marker

0 200
Scale in Feet

GEOCON
CONSULTANTS, INC.
524 S. GRAND AVE. - SUITE 2900 - LOS ANGELES, CA 90071-3331
PHONE (213) 536-1252 - FAX (213) 536-1263

Greenway Trail Project
City of Whittier, California
SITE PLAN

A8050-06-03	October 2001	Figure 2f

Match Line (See Figure 2f)

Match Line (See Figure 2h)

PAINTER AVE.

DITTMAR DR.

GUNN M.R.

LA FORGE

GUILFORD

SAMSEL

WHEATLAND

FLOMAR

LAUREL AVE.

FRIENDS

MADISON

FIREBIRD

TARRYTON

CAROLL

DANBROOK DR.

LAMBERT RD.

BLUFORD

HELMER

SHOEMAKER AVE.

HAZZARD'S FLAT

Masonry Block Debris Pile

T26

T27

LEGEND:

T1 Approximate Exploratory Trench Location

Mile Post Marker

0 100

Scale in Feet

GEOCON CONSULTANTS, INC.

Greenway Trail Project

City of Whittier
California

SITE PLAN

A8050-06-03	October 2001	Figure 2g

Match Line (See Figure 2g)

Match Line (See Figure 2i)

LEGEND:

T1 ■ Approximate Exploratory Trench Location

Area of Partial or Complete Rail & Tie Removal

0 200

Scale in Feet

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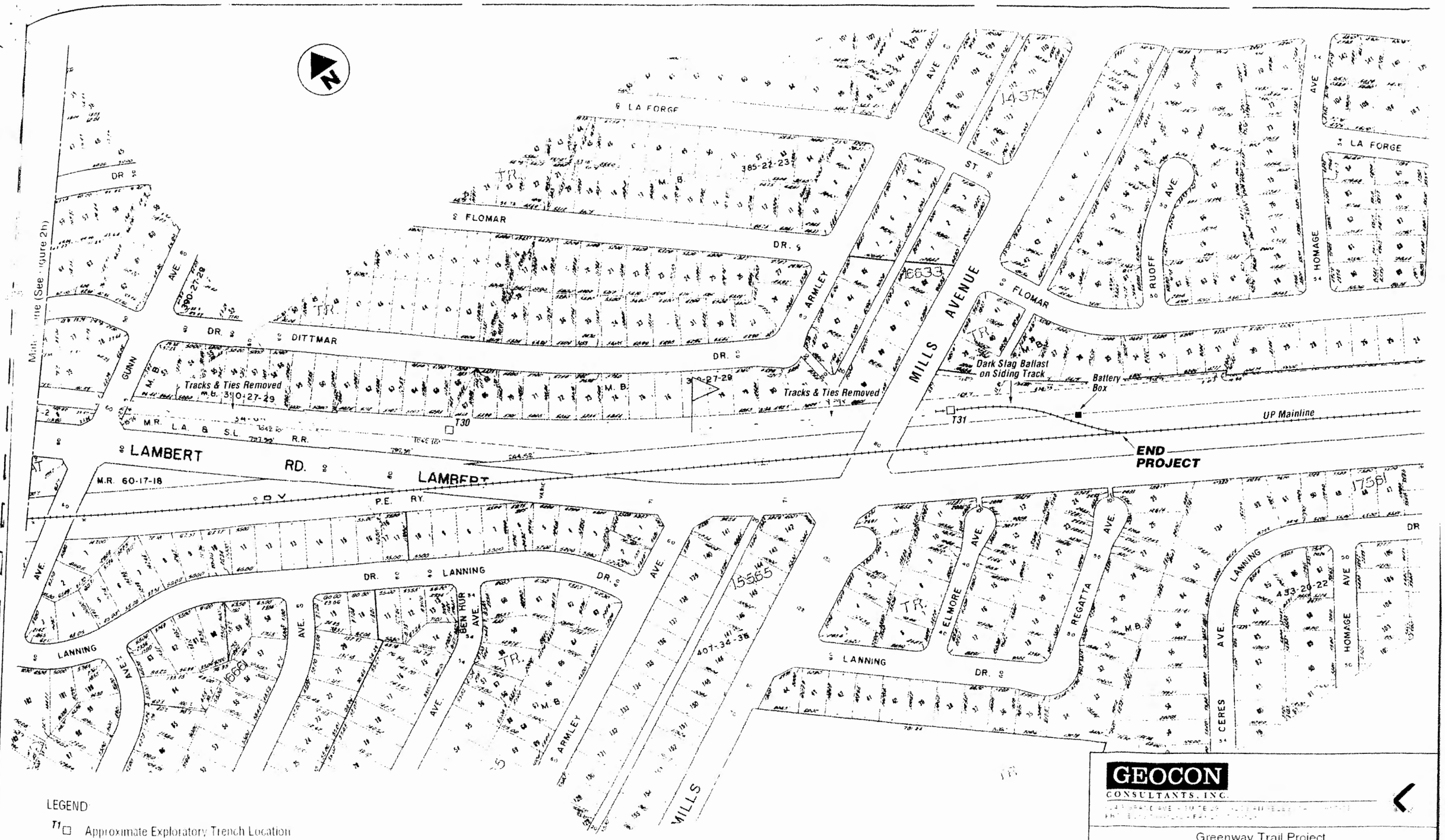
Greenway Trail Project		
City of Whittier, California		
SITE PLAN		
A8050-06-03	October 2001	Figure 2h



LEGEND

- T1 □ Approximate Exploratory Trench Location
- Area of Partial or Complete Rail & Tie Removal
- Approximate Extent of Dark Slag Ballast
- Mile Post Marker

GEOCON
CONSULTANTS, INC.

Greenway Trail Project
City of Whittier, California

SITE PLAN

A8050-06-03	October 2001	Figure 2i

TABLE 1
SAMPLE LOG
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE IDENTIFICATION – DEPTH (feet)	SAMPLE TYPE	POTENTIAL IMPACT	LIGHT SLAG DEPTH (inches)	DARK SLAG DEPTH (inches)	GRAVEL DEPTH (inches)	BALLAST WIDTH (feet)
Trench 1 - 0.5	Light Slag Ballast	Heavy Metals - Slag	4	NP	NP	30-40
Trench 1 - 1	Soil					
Trench 1 – 2	Soil					
Trench 2 - 0.5	Soil	Heavy Metals - Slag	5	NP	NP	10
Trench 2 – 1	Soil					
Trench 2 – 2	Soil					
Trench 3 - 0.5	Light Slag Ballast	Heavy Metals - Slag	8	NP	8	12
Trench 3 – 1	Soil					
Trench 3 – 2	Soil					
Trench 3 - Tie Gravel	Ballast	Creosote Stains Beneath Rail Ties				
Trench 4 - 0.5	Light Slag Ballast	Heavy Metals - Slag	4	NP	NP	20
Trench 4 – 1	Soil					
Trench 4 – 2	Soil					
Trench 5 - 0.5	Light Slag Ballast	Heavy Metals - Slag	4	NP	12	20
Trench 5 – 1	Soil					
Trench 5 – 2	Soil					
Trench 6 - 0.5	Light Slag Ballast	Heavy Metals - Slag	8	NP	NP	16
Trench 6 – 1	Soil					
Trench 6 – 2	Soil					
Trench 7 - 0.5	Light Slag Ballast	Heavy Metals - Slag	6	NP	NP	18
Trench 7 – 1	Soil					
Trench 7 – 2	Soil					
Trench 8 – 1	Soil	Heavy Metals, TPH And VOCs Associated With Railroad Debris Fill Materials	NA	NA	NA	NA
Trench 8 - 5.5	Debris Fill					
Trench 8 – 7	Soil					
Trench 8 – Stockpile	Debris Fill					
Trench 9 – 1	Soil	TPH Stains Adjacent To Cool-A-Coo	NA	NA	NA	NA
Trench 10 – 1	Soil	TPH Adjacent To City Maintenance Facility	7	NP	NP	17
Trench 11 – 2	Soil	TPH Stain Within Track Bed	10.5	NP	NP	17
Trench 12 - 0.5	Dark Slag Ballast	Heavy Metals – Slag	NP	8	NA	15

TABLE 1
SAMPLE LOG
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE IDENTIFICATION – DEPTH (feet)	SAMPLE TYPE	POTENTIAL IMPACT	LIGHT SLAG DEPTH (inches)	DARK SLAG DEPTH (inches)	GRAVEL DEPTH (inches)	BALLAST WIDTH (feet)
Trench 12 – 1	Soil					
Trench 12 – 2	Soil					
Trench 13 – 2	Soil	TPH - Former Train Station Site	NA	NA	NA	NA
Trench 14 – 1	Soil	Pesticides, PCBs, Herbicides, lead and arsenic	NA	NA	NA	NA
Trench 15 - 0.5	Dark Slag Ballast	Heavy Metals – Slag	NP	4 (siding track)	NP	15
Trench 15 – 1	Soil					
Trench 15 – 2	Soil					
Trench 16 - 0.5	Light Slag Ballast	Heavy Metals – Slag	6	NP	12	15
Trench 16 – 1	Soil					
Trench 16 – 2	Soil					
Trench 17 - 1.5	Soil	Pesticides, PCBs, Herbicides, lead and arsenic	NA	NA	NA	NA
Trench 18 – 1	Soil	TPH and VOCs Adjacent To Mar Vista Molding Co.	NA	NA	NA	NA
Trench 19 - 0.5	Light Slag Ballast	Heavy Metals – Slag	3	NP	18	15
Trench 19 – 1	Soil					
Trench 19 – 2	Soil					
Trench 20 – 2	Soil	TPH and VOCs Adjacent to Former Dip Tank	NA	NA	NA	NA
Trench 21 – 1	Soil	VOCs From Glue Adjacent To Mar Vista Molding Co.	NA	NA	NA	NA
Trench 22 – 2	Soil	TPH Surface Stains/Oil Absorbent	NA	NA	NA	NA
Trench 23 – 1	Soil	TPH Surface Stains Adjacent To Pro Auto Sales				
Trench 24 - 0.5	Light & Dark Slag Ballast	Heavy Metals – Slag	4	12 (between ties)	NP	30-40 (slope)
Trench 24 – 1	Soil					
Trench 24 – 2	Soil					
Trench 25 - 0.5	Light Slag Ballast	Heavy Metals – Slag	NP	4	12	22
Trench 25 – 1	Soil					
Trench 25 – 2	Soil					
Trench 26 - 0.5	Light Slag Ballast	Heavy Metals – Slag	3	NP	9	17
Trench 26 – 1	Soil					
Trench 26 – 2	Soil					

TABLE 1
SAMPLE LOG
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE IDENTIFICATION – DEPTH (feet)	SAMPLE TYPE	POTENTIAL IMPACT	LIGHT SLAG DEPTH (inches)	DARK SLAG DEPTH (inches)	GRAVEL DEPTH (inches)	BALLAST WIDTH (feet)
Trench 27 – 1	Soil	Pesticides, PCBs and Herbicides	NA	NA	NA	NA
Trench 28 - 0.5	Light Slag Ballast	Heavy Metals – Slag	3	NP	9	15
Trench 28 – 1	Soil					
Trench 28 – 2	Soil					
Trench 29 – 1	Soil	TPH Adjacent to Lambert Tire Facility	NA	NA	NA	NA
Trench 30 - 0.5	Light Slag Ballast	Heavy Metals – Slag	3	NP	9	16
Trench 30 – 1	Soil					
Trench 30 – 2	Soil					
Trench 31 - 0.5	Dark Slag Ballast	Heavy Metals - Slag	NP	3	15	18
Trench 31 – 1	Soil					
Trench 31 – 2	Soil					
Trench 31 – Slag	Dark Slag Ballast					
S1 - 0.5	Soil	Pesticides, PCBs, Herbicides, lead and arsenic	NA	NA	NA	NA
S2 - 0.5	Soil	Pesticides, PCBs, Herbicides, lead and arsenic	NA	NA	NA	NA
S3 - 0	Soil	Lead at Painted Norwalk Bridge Abutment	NA	NA	NA	NA
S4 – 0	Soil	Lead at Painted Norwalk Bridge Abutment	NA	NA	NA	NA
S5 - 0.5	Soil	Pesticides, PCBs, Herbicides, lead and arsenic	NA	NA	NA	NA
S6 - 0.5	Soil	Pesticides, PCBs, Herbicides, lead and arsenic	NA	NA	NA	NA
S7 - 0.5	Soil	Pesticides, PCBs, Herbicides, lead and arsenic	6.5	NP	NP	17
S8 - 0	Soil	Pesticides, PCBs, Herbicides, lead and arsenic	NA	NA	NA	NA
S9 – 0 Tube	Soil	Pesticides, PCBs, Herbicides, lead and arsenic	NA	NA	NA	NA
S9 – 0 Bag	Soil	Lead From Paint at Pedestrian Tunnel	NA	NA	NA	NA
S10 – 0	Soil	Lead From Paint at Whittier Bridge Abutment	NA	NA	NA	NA
SD Box #1	Beige Paint Chip	Lead Containing Paint at Storm Drain Box	NA	NA	NA	NA
SD Box #1	Soil	Lead From Paint at Storm Drain Box	NA	NA	NA	NA
Ret Wall #1	Beige Paint Chip	Lead Containing Paint at Retaining Wall	NA	NA	NA	NA
Ret Wall #1	Soil	Lead From Paint at Retaining Wall	NA	NA	NA	NA

Notes: NP = Not present
NA = Not available

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS- TITLE 22 METALS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	T1-.5	T1-1	T1-2	T2-.5	T2-1	T2-2	T3-.5	TTLC	10 X STLC
ANALYTE	Results in milligrams per kilogram								
Antimony	0.50	0.50	0.42	0.49	0.50	0.50	<0.25	500	150
Arsenic	34	**210 (12/1.4)**	**93 (5.2/1.4)**	12	11	17	8.0	500	50
Barium	140	38	71	110	130	150	130	10,000	1,000
Beryllium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	75	7.5
Cadmium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	100	10
Chromium	30	7.5	11	22	20	20	10	2,500	5,600
Cobalt	5.5	3.5	6.4	9.5	11	9.0	3.0	8,000	800
Copper	46	22	30	22	20	28	14	2,500	250
Lead	48	44	28	5.0	3.5	14	18	1,000	50
Mercury	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	20	2
Molybdenum	1.5	0.25	0.39	0.48	0.50	0.50	0.33	3,500	3,500
Nickel	14	6.0	10	18	19	18	5.5	2,000	200
Selenium	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	100	10
Silver	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	500	50
Thallium	1.5	1.5	1.2	1.0	1.0	1.0	0.50	700	70
Vanadium	38	15	23	41	37	38	30	2,400	240
Zinc	64	110	230	52	48	100	45	5,000	2,500

Notes: B6-1-.5
- | | └── Sample depth in feet below surface grade
- | └──── Boring number
- └────── Sample/bent identification

< = Less than laboratory detection limits.
TTLC = Total Threshold Limit Concentration.
STLC = Soluble Threshold Limit Concentration.
(5.2/<1.0) = Soluble concentration by Waste Extraction Test (WET) using citric acid and WET using de-ionized water extractant

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS- TITLE 22 METALS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	T3-1	T3-2	T4-.5	T4-1	T4-2	T5-.5	T5-1	TTLC	10 X STLC
ANALYTE	Results in milligrams per kilogram								
Antimony	0.48	0.50	<0.25	0.48	0.45	1.0	0.50	500	150
Arsenic	**120 (4.8/1.2)**	18	4.0	**60 (7.1/<1.0)**	**90 (4.7/1.3)**	7.5	45	500	50
Barium	130	150	6.0	66	110	85	54	10,000	1,000
Beryllium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	75	7.5
Cadmium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	100	10
Chromium	18	27	1.5	12	18	110	8.0	2,500	5,600
Cobalt	10	14	2.0	6.0	9.0	2.5	4.5	8,000	800
Copper	18	22	4.0	12	20	14	10	2,500	250
Lead	3.5	4.5	3.5	2.5	3.5	25	15	1,000	50
Mercury	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	20	2
Molybdenum	0.39	0.42	<0.25	<0.25	0.29	0.42	<0.25	3,500	3,500
Nickel	14	19	1.5	9.0	16	4.5	6.0	2,000	200
Selenium	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	100	10
Silver	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	500	50
Thallium	1.0	1.5	<0.25	1.0	1.0	3.0	1.5	700	70
Vanadium	36	53	5.5	24	35	**500 (11/<1.0)**	25	2,400	240
Zinc	48	57	20	34	46	34	110	5,000	2,500

Notes: B6-1-.5
- B6-1-.5: Sample depth in feet below surface grade
- B6-1-.5: Boring number
- B6-1-.5: Sample/bent identification

< = Less than laboratory detection limits.
TTLC = Total Threshold Limit Concentration.
STLC = Soluble Threshold Limit Concentration.
(5.2/<1.0) = Soluble concentration by Waste Extraction Test (WET) using citric acid and WET using de-ionized water extractant

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS- TITLE 22 METALS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	T5-2	T6-.5	T6-1	T6-2	T7-.5	T7-1	T7-2	TTLC	10 X STLC
ANALYTE	Results in milligrams per kilogram								
Antimony	0.40	0.50	0.43	0.45	1.0	0.50	0.31	500	150
Arsenic	**100 (4.2/1.2)**	44	**84 (3.7/<1.0)**	9.5	46	46	45	500	50
Barium	150	62	150	160	140	100	150	10,000	1,000
Beryllium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	75	7.5
Cadmium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	100	10
Chromium	18	26	15	16	52	22	15	2,500	5,600
Cobalt	9.0	3.5	7.5	8.0	6.0	7.0	8.0	8,000	800
Copper	20	12	17	18	**1,000 (25/<1.0)**	160	22	2,500	250
Lead	3.5	20	3.5	3.0	**190 (6.1/<1.0)**	20	3.5	1,000	50
Mercury	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	20	2
Molybdenum	0.50	0.50	1.0	1.5	1.5	0.50	1.0	3,500	3,500
Nickel	17	6.5	15	16	33	13	16	2,000	200
Selenium	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	100	10
Silver	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	500	50
Thallium	1.5	1.0	0.50	0.50	1.0	1.0	0.50	700	70
Vanadium	40	79	35	38	88	83	36	2,400	240
Zinc	59	64	120	46	260	160	46	5,000	2,500

Notes: B6-1-.5
- B6-1-.5 — Sample depth in feet below surface grade
- B6-1-.5 — Boring number
- B6-1-.5 — Sample/bent identification
- < = Less than laboratory detection limits.
- TTLC = Total Threshold Limit Concentration.
- STLC = Soluble Threshold Limit Concentration.
- (5.2/<1.0) = Soluble concentration by Waste Extraction Test (WET) using citric acid and WET using de-ionized water extractant

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS- TITLE 22 METALS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	T8-1	T8-STK	T8-5.5	T8-7	T12-.5	T12-1	T12-2	TTLC	10 X STLC
ANALYTE	Results in milligrams per kilogram								
Antimony	0.27	<0.25	<0.25	<0.25	7.0	0.50	0.37	500	150
Arsenic	6.0	32	11	14	32	44	10	500	50
Barium	100	**3,600 (11/<1.0)**	170	210	7.5	50	130	10,000	1,000
Beryllium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	75	7.5
Cadmium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	100	10
Chromium	9.5	76 (0.18 HEX)	12	14	0.50	47	17	2,500	5,600
Cobalt	4.0	4.5	7.0	8.0	17	4.5	7.5	8,000	800
Copper	14	64	30	29	**460 (<1.0/<1.0)**	16	20	2,500	250
Lead	25	**5,800**	**140 (74/<1.0)**	**160 (<1.0/<1.0)**	**630 (5.2/<1.0)**	38	3.0	1,000	50
Mercury	1.0	1.7	0.19	<0.10	<0.10	<0.10	0.20	20	2
Molybdenum	0.50	1.5	1.5	1.0	40	0.50	2.0	3,500	3,500
Nickel	10	10	16	16	3.0	9.0	20	2,000	200
Selenium	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	100	10
Silver	<0.15	2.5	<0.15	1.5	0.19	<0.15	<0.15	500	50
Thallium	0.50	3.0	0.50	1.0	0.31	0.50	1.0	700	70
Vanadium	19	18	29	31	0.50	73	40	2,400	240
Zinc	100	940	360	310	420	110	52	5,000	2,500

Notes: B6-1-.5
- B6-1-.5 — Sample depth in feet below surface grade
- B6-1-.5 — Boring number
- B6-1-.5 — Sample/bent identification

< = Less than laboratory detection limits.
TTLC = Total Threshold Limit Concentration.
STLC = Soluble Threshold Limit Concentration.
HEX = Hexavalent Chromium
(5.2/<1.0) = Soluble concentration by Waste Extraction Test (WET) using citric acid and WET using de-ionized water extractant

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS-TITLE 22 METALS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	T15-.5	T15-1	T15-2	T16-.5	T16-1	T16-2	T19-.5	TTLC	10 X STLC
ANALYTE	Results in milligrams per kilogram								
Antimony	<0.25	0.27	0.29	1.0	<0.25	0.40	1.0	500	150
Arsenic	**60 (3.7/<1.0)**	16	8.0	18	18	15	13	500	50
Barium	94	170	120	160	140	150	84	10,000	1,000
Beryllium	<0.15	<0.15	<0.15	1.0	<0.15	<0.15	<0.15	75	7.5
Cadmium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	100	10
Chromium	9.5	16	13	200 (<0.1 HEX)	15	18	20	2,500	5,600
Cobalt	6.5	7.5	6.5	1.5	7.5	8.5	7.0	8,000	800
Copper	140	22	16	12	20	22	39	2,500	250
Lead	**94 (<1.0/<1.0)**	5.5	2.5	7.0	5.5	6.5	**84 (2.5/<1.0)**	1,000	50
Mercury	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.27	20	2
Molybdenum	18	3.5	1.5	<0.25	2.0	2.0	1.0	3,500	3,500
Nickel	22	23	16	7.5	18	22	13	2,000	200
Selenium	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	100	10
Silver	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	500	50
Thallium	0.50	0.50	0.50	2.5	0.50	1.0	0.50	700	70
Vanadium	22	40	32	**1,000 (7.5/<1.0)**	36	42	34	2,400	240
Zinc	440	66	42	18	86	74	140	5,000	2,500

Notes: B6-1-.5
- B6 = Sample/bent identification
- 1 = Boring number
- .5 = Sample depth in feet below surface grade

< = Less than laboratory detection limits.
TTLC = Total Threshold Limit Concentration.
STLC = Soluble Threshold Limit Concentration.
HEX = Hexavalent Chromium
(5.2/<1.0) = Soluble concentration by Waste Extraction Test (WET) using citric acid and WET using de-ionized water extractant

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS- TITLE 22 METALS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	T19-1	T19-2	T24-.5	T24-1	T24-2	T25-.5	T25-1	TTLC	10 X STLC
ANALYTE	Results in milligrams per kilogram								
Antimony	0.50	0.32	2.5	0.50	0.29	1.0	0.25	500	150
Arsenic	9.5	18	**70 (<1.0/<1.0)**	32	9.0	20	20	500	50
Barium	68	40	96	43	170	60	37	10,000	1,000
Beryllium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	75	7.5
Cadmium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	100	10
Chromium	11	7.0	5.0	5.5	14	100	8.0	2,500	5,600
Cobalt	8.0	4.5	6.5	3.0	6.5	6.5	3.5	8,000	800
Copper	23	9.5	**510 (<1.0/<1.0)**	8.5	20	240	12	2,500	250
Lead	28	29	**330 (<1.0/<1.0)**	10	8.0	43	6.5	1,000	50
Mercury	<0.10	0.10	0.17	<0.10	0.11	<0.10	<0.10	20	2
Molybdenum	0.38	0.42	97	0.50	1.0	42	0.50	3,500	3,500
Nickel	9.0	6.5	5.0	4.5	15	6.5	5.0	2,000	200
Selenium	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	100	10
Silver	<0.15	<0.15	0.50	<0.15	<0.15	<0.15	<0.15	500	50
Thallium	1.0	0.50	0.28	0.50	0.50	1.0	0.50	700	70
Vanadium	30	16	8.0	16	32	120	20	2,400	240
Zinc	63	64	660	260	46	150	73	5,000	2,500

Notes: B6-1-.5
- B6-1-.5: Sample depth in feet below surface grade
- B6-1-.5: Boring number
- B6-1-.5: Sample/bent identification
- < = Less than laboratory detection limits.
- TTLC = Total Threshold Limit Concentration.
- STLC = Soluble Threshold Limit Concentration.
- (5.2/<1.0) = Soluble concentration by Waste Extraction Test (WET) using citric acid and WET using de-ionized water extractant

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS- TITLE 22 METALS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	T25-2	T26-.5	T26-1	T26-2	T28-.5	T28-1	T28-2	TTLC	10 X STLC
ANALYTE	Results in milligrams per kilogram								
Antimony	0.50	2.0	<0.25	0.38	1.0	<0.25	0.37	500	150
Arsenic	16	12	16	41	34	16	20	500	50
Barium	150	60	36	180	130	32	160	10,000	1,000
Beryllium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	75	7.5
Cadmium	<0.15	<0.15	<0.15	0.16	<0.15	<0.15	<0.15	100	10
Chromium	26	170	5.5	21	60	6.0	22	2,500	5,600
Cobalt	11	2.5	3.5	8.5	4.5	3.5	8.0	8,000	800
Copper	25	10	5.5	24	14	5.5	24	2,500	250
Lead	4.0	18	2.0	4.5	42	4.5	6.0	1,000	50
Mercury	<0.10	0.14	<0.10	<0.10	0.12	<0.10	<0.10	20	2
Molybdenum	0.50	<0.25	0.30	3.0	0.50	<0.25	2.5	3,500	3,500
Nickel	20	2.5	4.0	29	8.0	4.5	26	2,000	200
Selenium	<0.25	2.5	<0.25	<0.25	<0.25	<0.25	<0.25	100	10
Silver	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	500	50
Thallium	1.5	10	0.48	1.0	1.5	0.50	1.5	700	70
Vanadium	46	**710 (1.8/<1.0)**	15	50	130	16	50	2,400	240
Zinc	110	38	200	71	340	92	68	5,000	2,500

Notes: B6-1-.5
- | | └── Sample depth in feet below surface grade
- | └── Boring number
- └── Sample/bent identification

< = Less than laboratory detection limits.
TTLC = Total Threshold Limit Concentration.
STLC = Soluble Threshold Limit Concentration.
(5.2/<1.0) = Soluble concentration by Waste Extraction Test (WET) using citric acid and WET using de-ionized water extractant

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS- TITLE 22 METALS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	T30-.5	T30-1	T30-2	T31-.5	T31-1	T31-2	T31-SLAG	TTLC	10 X STLC
ANALYTE	Results in milligrams per kilogram								
Antimony	0.50	<0.25	0.32	0.50	0.50	0.28	0.30	500	150
Arsenic	**64 (2.8/<1.0)**	28	28	22	34	26	2.0	500	50
Barium	94	38	130	76	98	44	9.5	10,000	1,000
Beryllium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	75	7.5
Cadmium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	100	10
Chromium	66	7.5	18	15	18	8.0	1.0	2,500	5,600
Cobalt	6.5	4.0	7.5	8.0	8.0	4.0	12	8,000	800
Copper	18	6.5	18	**330 (<1.0/<1.0)**	26	7.5	**300 (<1.0/<1.0)**	2,500	250
Lead	28	3.0	3.5	**84 (<1.0/<1.0)**	40	2.5	28	1,000	50
Mercury	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	20	2
Molybdenum	1.0	0.37	1.5	4.5	1.0	0.44	5.0	3,500	3,500
Nickel	11	5.0	18	12	16	6.5	5.0	2,000	200
Selenium	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	100	10
Silver	<0.15	<0.15	<0.15	0.30	<0.15	<0.15	0.37	500	50
Thallium	1.5	0.50	0.50	1.0	1.0	0.50	<0.25	700	70
Vanadium	110	20	38	28	36	18	1.5	2,400	240
Zinc	100	98	57	180	240	220	87	5,000	2,500

Notes: B6-1-.5
- B6-1-.5: Sample depth in feet below surface grade
- B6-1-.5: Boring number
- B6-1-.5: Sample/bent identification

< = Less than laboratory detection limits.
TTLC = Total Threshold Limit Concentration.
STLC = Soluble Threshold Limit Concentration.
(5.2/<1.0) = Soluble concentration by Waste Extraction Test (WET) using citric acid and WET using de-ionized water extractant

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS – PETROLEUM HYDROCARBONS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	DATE	TPHg (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	VOCS EPA 8020 (µg/kg)	VOCS EPA 8260 (µg/kg)	SVOCs (µg/kg)
Detection Limit		<1.0	<1.0	<1.0	STD	STD	STD
T3-TIE G	8/23/01	---	<20	**1,600**	---	---	**35,000**[1]
T7-TIE G	8/23/01	---	<10	**340**	---	---	---
T8-STK	8/23/01	<1.0	<5.0	**250**	ND	**6.9**[2]	---
T8-5.5	8/23/01	<1.0	<10	**820**	ND	ND	---
T8-7	8/23/01	<1.0	<1.0	**5.2**	ND	ND	---
T9-1	8/23/01	---	<1.0	**96**	---	---	---
T10-1	8/23/01	<1.0	<1.0	**4.9**	ND	---	---
T11-2	8/23/01	<1.0	<1.0	**5.7**	ND	---	---
T13-2	8/23/01	<1.0	<1.0	**3.1**	ND	---	---
T18-1	8/23/01	---	<1.0	**17**	---	ND	---
T20-2	8/23/01	<1.0	<1.0	**6.5**	ND	**34**[3]	---
T21-1	8/23/01	---	---	---	---	ND	---
T22-2	8/23/01	---	<1.0	**7.1**	---	---	---
T23-1	8/23/01	---	<1.0	**5.1**	---	---	---
T29-1	8/23/01	<1.0	<5.0	**170**	ND	---	---

Notes:
TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
TPHmo = Total petroleum hydrocarbons as motor oil
µg/kg = Micrograms per kilogram
mg/kg = Milligrams per kilogram
GRO = Gasoline Range Organics by EPA Test Method 8015
VOCs = Volatile Organic Compounds
SVOCs = Semi-Volatile Organic Compounds by EPA Test Method 8270
1 = SVOC = Fluoranthene
2 = VOC = Naphthalene
3 = VOC = Trichloroethene

< = Less than laboratory test method detection limits
--- = Not analyzed
ND = not detected above method detection limit
STD = Standard method detection limit for each constituent
BOLD = Detection

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS – PESTICIDES, PCBs AND HERBICIDES
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	DATE	PESTICIDES EPA TEST METHOD 8081 (µg/kg)	PCBs EPA TEST METHOD 8081 (µg/kg)	HERBICIDES EPA TEST METHOD 8151 (µg/kg)
Detection Limit		STD	STD	STD
T2-.5	8/23/01	ND	ND	ND
S1-.5	8/23/01	**6.2[1], 20[2], 46[3], 9.2[4], 60[5], 5.7[6], 9.5[7], 2.6[8]**	**220[9]**	ND
S2-.5	8/23/01	ND	ND	ND
S5-.5	8/23/01	ND	ND	ND
S6-.5	8/23/01	**14[1], 23[3], 16[4], 130[5], 10[6], 16[7]**	ND	ND
S7-.5	8/23/01	**41[1], 110[2], 46[3], 84[4], 370[5], 250[6], 64[7], 11[8]**	ND	ND
S8-0	8/23/01	ND	ND	ND
S9A-0	8/23/01	ND	ND	ND
T14-1	8/23/01	ND	ND	ND
T17-1.5	8/23/01	ND	ND	ND
T27-1	8/23/01	ND	ND	ND

Notes:
< = Less than laboratory test method detection limits
--- = Not analyzed
µg/kg = Micrograms per kilogram
STD = Standard method detection limit for each constituent
PCBs= Poly chlorinated Biphenyls
ND = not detected above method detection limit
PRG = Preliminary Remediation Goal
1 = 4,4'-DDD (Residential PRG = 2,400 µg/kg)
2 = 4,4'-DDE (Residential PRG = 1,700 µg/kg)
3 = 4,4'-DDT (Residential PRG = 1,700 µg/kg)
4 = alpha-Chlordane (Residential PRG = 1,600 µg/kg)
5 = Chlordane (Residential PRG = 1,600 µg/kg)
6 = Dieldrin (Residential PRG = 30 µg/kg)
7 = gamma-Chlordane (Residential PRG = 1,600 µg/kg)
8 = Heptachlor epoxide (Residential PRG = 53 µg/kg)
9 = PCBs = Aroclor 1260 (Residential PRG = 220 µg/kg)
BOLD = Detection

TABLE 5
SUMMARY OF SOIL AND PAINT CHIP ANALYTICAL RESULTS - TOTAL AND SOLUBLE LEAD AND TOTAL ARSENIC
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	TOTAL LEAD EPA METHOD 6010 (mg/kg)	WET LEAD EPA METHOD 6010 (mg/l)	DI-WET LEAD EPA METHOD 6010 (mg/l)	TOTAL ARSENIC EPA METHOD 6010 (mg/kg)
T3-TIEG	22	---	---	10
SD BOX #1 PAINT	**1,100**	---	---	---
SD BOX #1 SOIL	**60**	2.2	<1.0	---
S1-.5	16	---	---	25
S2-.5	13	---	---	8.0
S3-0	**120**	1.4	<1.0	---
S4-0	4.0	---	---	---
S5-.5	6.0	---	---	7.5
S6-.5 '	34	---	---	12
S7-.5	**66**	---	---	9.0
RET WALL #1 PAINT	6.0	---	---	---
RET WALL #1 SOIL	**82**	**9.5**	<1.0	---
T7-TIEG	**100**	---	---	46
T9-1	7.5	---	---	9.5
T10-1	4.0	---	---	7.0
S8-0	**50**	---	---	6.5
T11-2	4.0	---	---	**99**
S9A-0	**150**	---	---	12
S9B-0	**120**	2.7	<1.0	---
T13-2	4.0	---	---	7.0
T14-1	5.0	---	---	8.0
T17-1.5	12	---	---	36
T18-1	34	---	---	22
T20-2	15	---	---	8.0

TABLE 5
SUMMARY OF SOIL AND PAINT CHIP ANALYTICAL RESULTS - TOTAL AND SOLUBLE LEAD AND TOTAL ARSENIC
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	TOTAL LEAD EPA METHOD 6010 (mg/kg)	WET LEAD EPA METHOD 6010 (mg/l)	DI-WET LEAD EPA METHOD 6010 (mg/l)	TOTAL ARSENIC EPA METHOD 6010 (mg/kg)
T22-2	3.5	---	---	8.0
T23-1	14	---	---	16
S10-0	**260**	**8.2**	<1.0	---
T27-1	33	---	---	9.0
T29-1	<0.25	---	---	<0.25

Notes: mg/kg = Milligrams per kilogram
mg/l = Milligrams per liter
WET = Waste Extract Test method using an acid extract
DI-WET = Waste Extract Test method using a deionized water extract
--- = Not analyzed
< = Less than laboratory reporting limits
BOLD = Greater than Total Threshold Limit Concentration of 1,000 mg/kg or
10 times Soluble Threshold Limit Concentration of 5 mg/l (50 mg/kg) for total lead concentrations.
BOLD = Greater than Soluble Threshold Limit Concentration of 5 mg/l for WET lead concentrations.
BOLD = Greater than 10 times Soluble Threshold Limit Concentration of 5 mg/l (50 mg/kg) for total arsenic concentrations.

Project No. A8050-06-03
October 11, 2001

Mr. Kirk E. Trost
Hyde, Miller, Owen & Trost
428 J Street, Suite 400
Sacramento, California 95814

Subject: GREENWAY TRAIL PROJECT
ABANDONED UNION PACIFIC RAILROAD CORRIDOR
ASBESTOS AND LEAD-CONTAINING PAINT SURVEYS

Dear Mr. Trost:

Geocon Consultants, Inc. has performed asbestos and lead-containing paint surveys at the subject site. The scope of services provided by Geocon included surveying four bridges for asbestos and lead-containing paint, collecting bulk samples, and submitting the samples to laboratories for analyses.

PROJECT LOCATION AND PROPOSED IMPROVEMENTS

The subject site consists of the following four bridge structures associated with an abandoned Union Pacific Railroad (UP) corridor in Whittier, California:

- Interstate 605 Overcrossing;
- Norwalk Boulevard Overcrossing;
- Pickering Avenue Overcrossing; and
- Whittier Boulevard Overcrossing.

The proposed project involves the acquisition of the UP corridor and the associated bridge structures by the City of Whittier for potential redevelopment as a pedestrian trail. The approximate location of the *Site* and associated bridge structures are depicted on the Project Location Map, Figure 1. Photographs of the individual bridges, suspect materials, and sample locations are presented on Figures 2 through 5.

PURPOSE

The purpose of the scope of work was to determine the presence and quantity of asbestos and deteriorated lead-containing paint on the bridges. The information obtained from this investigation may be used to estimate removal and disposal costs and coordinate asbestos and/or lead-containing paint abatement, if necessary, in conjunction with future bridge renovation and/or demolition work.

FIELD ACTIVITIES

The following field activities were performed in conjunction with the Phase II Environmental Site Assessment for the Greenway Trail Project.

sbestos Survey

The *Code of Federal Regulations (CFR),* 40 CFR 61, Subpart M, National Emissions Standards for Hazardous Air Pollutants (NESHAP) and Federal Occupational Safety and Health Administration (FED OSHA) classify asbestos-containing materials (ACM) as any material or product which contains more than 1% asbestos. Nonfriable ACM are classified by NESHAP as either Category I or Category II material defined as follows:

- **Category I** – asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products.
- **Category II** – all remaining types of non-friable asbestos-containing material not included in Category I that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Regulated asbestos-containing material (RACM) is classified as any material that contains greater than 1% asbestos by dry weight and is:

1. Friable; or
2. Category I material that has become friable; or
3. Category I material that has been subjected to sanding grinding, cutting or abrading; or
4. Category II non-friable material that has a high probability of becoming crumbled, pulverized, or reduced to a powder during demolition or renovation activities.

With respect to potential worker exposure, the California Code of Regulations (CCR), 8 CCR 341.6, defines asbestos-containing construction materials (ACCM) as construction material that contains more than 0.1% asbestos.

Mr. David Watts, a California Certified Asbestos Consultant (CAC), certification No. 98-2404 (expiration September 16, 2002), performed the asbestos surveys of the subject bridge sites on August 15, 2001.

Suspect ACM were grouped into homogeneous areas with representative samples randomly collected from each. In addition, each potential ACM was evaluated for condition (evidence of deterioration, physical damage, and water damage) and friability.

Nine bulk asbestos samples, including thermal system pipe insulation and joint expansion material, were collected from the subject bridge sites. No other suspect ACM were observed.

Geocon's procedures for inspection and sampling in accordance with the Greenway Trail Project are discussed below:

- Collected bulk asbestos samples after first wetting the material with a light mist of water. The samples were then cut from the substrate and transferred to a labeled container. Note that when multiple samples were collected, the sampling locations were distributed throughout the homogeneous area (spaces where the material was observed).
- Relinquished bulk asbestos samples to Advanced Technology Laboratories who subcontracted the analyses to Scientific Laboratories of California (SCILAB), a California-licensed laboratory, for asbestos analysis in accordance with EPA Test Method 600/M4-82-020 using polarized light microscopy (PLM) under standard chain-of-custody procedures. SCILAB is a laboratory accredited by the National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NIST-NVLAP) for bulk asbestos

fiber analysis. The laboratory analyses were performed on a standard two-week turn-around-time.

Two of the bridges (Norwalk Boulevard Overcrossing and Whittier Boulevard Overcrossing) contained potentially asbestos-containing expansion joint material. Potentially asbestos-containing thermal system pipe insulation was also observed at the Interstate 605 Overcrossing. Consequently, bulk samples of these materials were collected. Photographs of the materials sampled are presented on Figures 2 through 5. The sample identification numbers, locations, and descriptions of the materials sampled at the Interstate 605, Norwalk Boulevard and Whittier Boulevard Overcrossings are summarized in Table 1.

Lead-Containing Paint Survey

Lead-based paint is defined by Title 17, CCR, Division 1, Chapter 8, §35033 as any surface coating that contains an amount of lead equal to, or in excess of one milligram per square centimeter ($1.0\ mg/cm^2$) or more than half of one percent (0.5%) by weight. However, construction activities (including demolition) which disturb materials containing any amount of lead are subject to certain requirements of the California Division of Occupational Safety and Health (Cal/OSHA) lead standard contained in Title 8, CCR, Section 1532.1. Deteriorated lead-based paint is defined by Title 17, CCR, Division 1, Chapter 8, §35022 as a lead-based surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separating from a component. Demolition of a deteriorated lead-containing paint (LCP) component would require waste characterization and appropriate disposal. Intact lead-containing paint on a component is currently accepted by most landfill facilities, however, contractor(s) should characterize painted waste materials prior to disposal.

Potential hazards exist to workers who remove or cut through lead-containing paint coatings during demolition. Dust containing hazardous concentrations of lead may be generated during scraping or cutting materials coated with lead-containing paint. Torching of these materials may produce lead oxide fumes. Therefore, air monitoring and/or respiratory protection may be required during the demolition of materials coated with lead-containing paint. Guidelines regarding regulatory provisions for construction work where workers may be exposed to lead are presented in the Title 8, CCR, Section 1532.1.

Mr. David Watts, a Certified Lead-Based Paint Inspector/Assessor and Project Monitor with the California Department of Health Services (DHS), Certification Nos. I-1734 and M-1734, performed the LCP surveys of the subject bridge sites on August 15, 2001. Eighteen LCP samples were collected.

In addition, each painted area was evaluated for evidence of deterioration such as flaking or cracking.

Geocon's procedures for inspection and sampling are discussed below:

- Collected representative bulk samples of suspect LCP using techniques presented in the United States Department of Housing and Urban Development (HUD) guidelines.
- Relinquished LCP samples to Advanced Technology Laboratories (ATL), a California-licensed and Caltrans approved subcontractor, for chemical analysis for total lead following EPA Test Method 6010B under standard chain-of-custody procedures. The laboratory analyses were performed on a standard two-week turn-around-time.

Photographs of the painted components sampled are presented on Figures 2 through 5. The sample identification numbers, locations, colors, and conditions of the paints are summarized in Table 2.

ANALYTICAL RESULTS

Asbestos

Chrysotile asbestos was detected in thermal system pipe insulation collected from the Interstate 605 Overcrossing structure at a concentration of 20%. The insulation was observed to be in good condition during the survey. No asbestos was detected in samples of joint expansion material collected from the Norwalk and Whittier Boulevard bridge structures.

The laboratory asbestos results are summarized in Table 1. Copies of the laboratory report and chain-of-custody documentation are included herein as an attachment.

Lead-Containing Paint

Lead was detected in all of the paint samples collected at each bridge site at concentrations ranging from 110 to 460,000 mg/kg. Lead concentrations of gray paint (typically applied to superstructures) ranged from 11,000 to 460,000 mg/kg and were observed to be intact. Lead concentrations of beige paint (typically applied to abutments) ranged from 110 to 560 mg/kg. However, beige-painted abutments at the Norwalk Boulevard, Pickering Avenue, and Whittier Boulevard overcrossings were observed to be significantly flaking or peeling.

The laboratory LCP results are summarized in Table 2. Copies of the laboratory report and chain-of-custody documentation are included herein as an attachment.

CONCLUSIONS AND RECOMMENDATIONS

Asbestos

Based on the analytical test results, Geocon recommends that thermal system pipe insulation used on the Interstate 605 Overcrossing structure be removed and disposed of by a licensed and certified asbestos abatement contractor prior to planned bridge renovation and/or demolition activities that would disturb the pipe insulation materials. The estimated quantity of pipe insulation ACM is 1,200 square feet. For preliminary planning purposes only, the approximate abatement cost for this material is $12,500.

Lead-Containing Paint

Based on the analytical test results, Geocon recommends that peeling/flaking LCP observed on the abutments of the Norwalk, Pickering and Whittier Boulevard bridge sites be removed and disposed of prior to planned bridge renovation and/or demolition work. The contractor should be required to use personnel who have lead-related construction certification as supervisors or workers, as appropriate, from the California DHS for LCP removal work. Loose and peeling/flaking LCP require removal prior to demolition for waste segregation purposes: to separate potentially hazardous (Category III concentrated lead) waste from non-hazardous demolition debris (Category II intact lead-painted architectural components). For preliminary planning purposes only, the approximate abatement cost for deteriorated lead-containing abutment paint is $10,500.

Geocon also recommends that painted surfaces at the bridge sites be treated as lead-containing for purposes of determining the applicability of the Cal/OSHA lead standard during any maintenance, renovation, or demolition activities. This recommendation is based on LCP sample results, the age of

the bridges, and the fact that lead was a common ingredient of paints manufactured before 1978 and is still an ingredient of some industrial paints.

Typically, only paints that are peeling, flaking, or have otherwise become separated from their substrate are of concern from a hazardous waste standpoint. The California Department of Toxic Substances Control (DTSC) "does not generally expect intact painted building materials to exhibit a characteristic of hazardous waste when disposed of." However, construction activities (including renovation or demolition) which disturb materials containing any amount of lead are subject to certain requirements of the Cal/OSHA lead standard contained in Title 8, CCR, Section 1532.1. Intact lead-painted building materials that are removed/demolished should not require disposal as hazardous waste; however, contractor(s) should characterize painted waste materials prior to disposal.

LIMITATIONS

The asbestos and lead-containing paint surveys were conducted in conformance with generally accepted standards of practice for identifying and evaluating asbestos and lead-containing paint in structures. However, asbestos and/or lead-containing paint may exist in areas of the structures not accessible or sampled in conjunction with the Greenway Trail Project.

If you have any questions concerning the contents of this report, or if we may be of further service, please contact the undersigned at your convenience.

Sincerely,

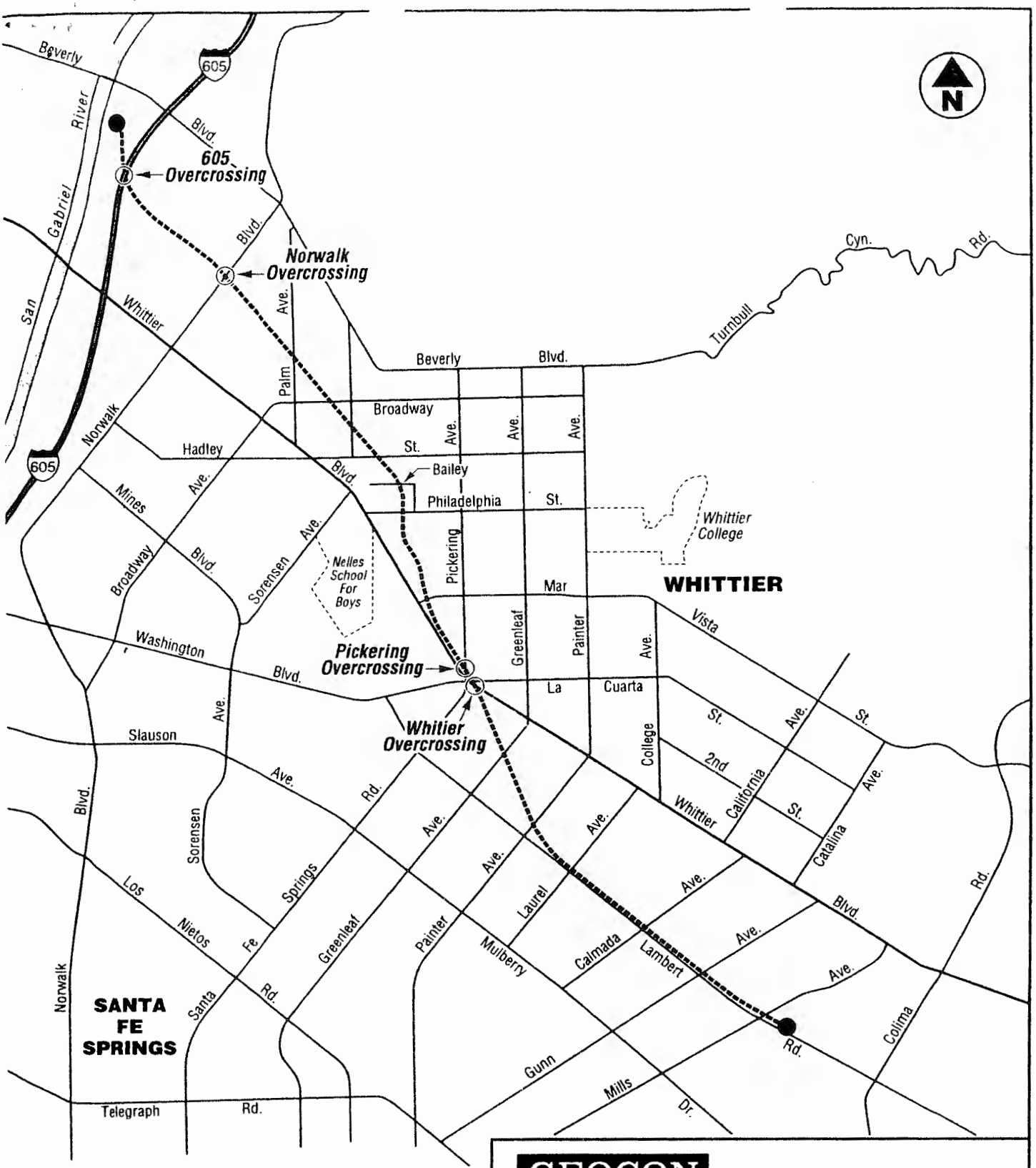
GEOCON CONSULTANTS INC.

David A. Watts, CAC
Project Scientist

DAW:JEJ:sd

(13) Addressee

Attachments: Figure 1, Project Location Map
Figures 2 - 5, Site Photos 1 through 8
Table 1, Summary of Analytical Laboratory Test Results – Asbestos
Table 2, Summary of Analytical Laboratory Test Results – LCP
Laboratory Analytical Reports and Chain-of-Custody Documentation



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Scale in Miles

GEOCON
CONSULTANTS, INC.
624 S GRAND AVE. – SUITE 2900 · LOS ANGELES, CA. 90017-3330
PHONE 213 538-1282 – FAX 213 538-1283

Greenway Trail Project

City of Whittier, California

PROJECT LOCATION MAP

A8050-06-03	October 2001	Figure 1